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This Journal is the official monthly publication of the AMERICAN PHARMACEUTICAL ASSOCIATION, dedicated to the elevation and unification of the profession of Pharmacy through communication of authoritative scientific, professional, and cultural information. It is devoted to the education of pharmaceutical practitioners, and it functions as the professional voice of Pharmacy, which is directed to all members of the profession of Pharmacy in education, government, industry, and professional practice.

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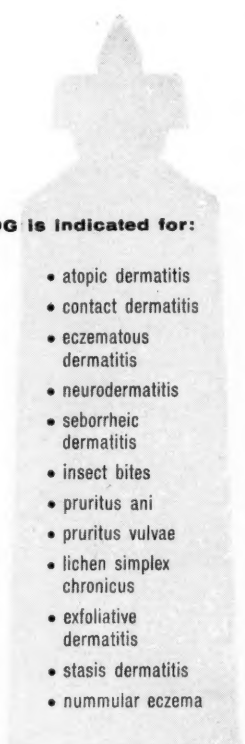
KENALOG is for topical use only. It is available in a 0.1% concentration as a cream, lotion or ointment. The cream and ointment are packaged in 5 Gm and 15 Gm tubes, the lotion in a 15cc plastic squeeze bottle. Get in touch with your Squibb representative and get an ample supply of each. Be prepared for the coming demand.



KENALOG is indicated for:

- atopic dermatitis
- contact dermatitis
- eczematous dermatitis
- neurodermatitis
- seborrheic dermatitis
- insect bites
- pruritus ani
- pruritus vulvae
- lichen simplex chronicus
- exfoliative dermatitis
- stasis dermatitis
- nummular eczema

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Washington Views

Proprietary manufacturers, even when sometimes they are subsidiaries of ethical drug firms, in their eagerness for mass distribution of their self-medication remedies to consumers, tend to revert to the old-time medicine man type of spiels and humbug in their advertising and tend to ignore retail pharmacy whenever it seems to be more expedient from the economic standpoint to distribute through the supermarkets, groceries, variety stores, and other nonprofessional outlets. There is a general tendency toward this short-range thinking and planning which undermines Pharmacy, and destroys public esteem for these remedies.

The Federal Government has been accused, by a spokesman for the Pharmaceutical Manufacturers Association, of distributing unfair and sensational news releases before those criticized either know of the charges or have the right to state their position.

The trend away from dispensing of drugs by physicians is being accelerated by pharmacists who are constantly improving prescription service and fostering good physician-pharmacist relations.

The insatiable thirst on the part of the public for news about new drugs is due in large part to the realization that scientists in general and medical scientists in particular will determine whether the public, even the world itself, will survive.

Blood for transfusions, glucose for intravenous injections, and antibiotics would be the medical supplies in greatest demand in regions of local radioactive fallout produced by nuclear attack, according to Willard F. Libby, Commissioner of the Atomic Energy Commission, who pointed out that 700,000 persons in the United States would die from bone cancer and leukemia as a result of atmospheric contamination with radioactive materials during the 60 years following an explosion of 5,000 megatons of nuclear bombs in some other part of the world.

There is a definite trend for physicians to maintain offices in hospitals for greater efficiency, prestige, income, and convenience. This is influencing the distribution of prescriptions so that many that would normally be filled in retail pharmacies are now being filled in hospital pharmacies.

Pharmacists can help prevent serious injuries by suitably warning youngsters and at times refusing to sell potentially dangerous chemicals to the young boys and girls of this nation who, caught up in the space craze, are losing limbs and eyes in their attempts to build rockets and other weapons with the aid of materials purchased in pharmacies.

Pharmacists across this nation in education, industry, distribution, and government service are slowly succeeding in their efforts to consolidate the total professional and scientific personnel of all pharmaceutical areas of activity into one strong, active organization which can speak forcefully and constructively for the whole of Pharmacy.

Last Minute News

There have been serious outbreaks of paralytic polio in those sections of the country where there are large numbers of persons unvaccinated with Salk Vaccine. The peak week came September 20 when 211 cases were reported to the U.S. Public Health Service.

British scientists report that the common cold has been prevented with the use of autogenous vaccines and antibiotics.

The potent new antibiotic mitomycin-C is reported by Japanese scientists to be effective as an inhibitor of several types of cancer. Bristol Laboratories is experimenting with small quantities.

The birth of a large baby foreshadows the development of diabetes in the mother, according to Nutrition Reviews.

Studies on viruses causing cancer and on chemotherapeutic agents inhibiting growth of cancer cells are expected to provide a major breakthrough in the treatment of cancer, the second leading cause of death, now claiming about 250,000 lives annually.

Color vision tests indicate that some males have XX chromosomes and are therefore female so far as nuclear or genetic sex is concerned.

Pieces of calf bone and powdered bone made into a paste have been used to replace bony defects about the face by plastic surgeons from Duke University Medical School.

More than 40% of the U.S. population ages 25 and over have a high school education, and about 8,000,000 persons now have college degrees.

About 17% of the 12,325 internship positions available in this country last year, remained unfilled because the number of graduates of foreign medical schools coming to the U.S. plus the 7,000 graduates of the American medical schools was inadequate to take care of these needs.

Radiological defense instrument kits distributed by the Office of Defense and Civilian Mobilization are being used in 6,000 high schools throughout the U.S. to instruct 1,000,000 students in the science of radiological defense.

More than two-thirds of the 100,000 infants born into the world daily will suffer from severely-damaging malnutrition because they will be born in countries that are already overpopulated as well as underdeveloped.

Antihistamines, tranquilizers, and motion sickness drugs which are advertised on television commercials for safe self-medication are a risk to motorists, according to Frank Pinchak, President of the New Jersey Pharmaceutical Association.

The Hill-Burton Hospital and Medical Facilities Program has reduced the number of persons to whom hospital services were not easily available from 10,000,000 to 2,800,000 since 1948.

Dr. John W. Dargavel, Executive Secretary of the NARD, has thrown the weight of his association into the political scene in Wisconsin to help re-elect Senator Proxmire. The Wisconsin Pharmaceutical Association has objected to his action, made in the interest of Fair Trade, because candidates in both political parties are in favor of Fair Trade and also friends of WPA.

According to a study made for *Medical Economics*, 42% (54,900) of the 132,000 prescribing physicians in the U.S. write 75 prescriptions per week, and 27% (36,000) have more than 150 patients. Latest survey data indicate that the U.S. has 168,014 licensed physicians (GP's and specialists).

The number of male pharmacists has doubled during the past 50 years, whereas the number of female pharmacists is now 12 times what it was 50 years ago, according to the Bureau of the Census.

Psittacosis, or parrot fever, may be eliminated from birds by treatment with Aureomycin in sesame oil.

The new antibiotic kanamycin removes the typhoid organism from the bodies of a large percentage of carriers.

The total output of medicinals in bulk is now approximately 100,000,000 pounds per year.

Out of every 5 physicians, 3 claim that their own handling of a case is not influenced by the fact that a patient is insured.

During the last 2 years, 441 grants totaling $85,958,065, made to public and nonprofit hospitals, medical schools, and other research institutions which provide at least an equal amount for each project, have been awarded by the Public Health Service, according to Surgeon General Leroy E. Burney.

Perfume oils are antibacterial and antifungal.

According to Dr. William L. Estes, Jr., outgoing President of the American College of Surgeons, surgery is less dangerous and more predictable than it ever was. Of the 10,000,000 surgical operations to be performed this year in the U.S., including 20 to 30 operations on the open heart each week, a very high percentage will be successful because of modern techniques and better drugs, especially the antibiotics and muscle-relaxing medicines.

The National Safety Council estimates that there will be 2,000 less deaths on the nation's highways during 1958 than in 1957.

Women between the ages of 15 and 44 pay most of the 850,000,000 visits to physicians each year in this country.

Mobility statistics indicated that each year 1 in 5 Americans moves his place of residence.

Dozens of cases of baldness occurring in young girls are attributed to pulling the hair upward and backward to form pony tails.

Negotiations toward a merger of the R. J. Reynolds Tobacco Company and Warner-Lambert Pharmaceutical Company have benefited both organizations.

More than 685,000 Korean conflict veterans will soon be able to convert their GI insurance to permanent GI policies, according to the Veterans Administration.

The number of older aged persons with health insurance is growing at a much faster rate than the older aged group itself, according to a study made this year by the U.S. Department of Health, Education, and Welfare. The 15,000,000 persons 65 years of age and older will increase to 21,000,000 by 1975.

One out of every 15 babies born in the United States today is premature, but babies weighing 2 or more pounds have a 72% chance of survival, although one fourth of premature infants face life with some degree of brain impairment.

The American Medical Association is developing a coding system for drugs based on physical characteristics such as size, shape, color, scoring, and similar features of tablets and capsules. This system will aid in the rapid identification of toxic drugs involved in poisoning cases.

Maternal stress during pregnancy is an important cause of birth defects.

The new and advanced method of theophylline therapy

CLYSMATHANE®

(FLEET)

Now supplied in a

Prescription Package

of SIX single-dose, ready-to-use Disposable Rectal Units

This economical six-unit package will increase Rx's on CLYSMATHANE (Fleet) which physicians already recognize as superior for alleviating symptoms of bronchial asthma and acute left ventricular failure.

Each single-dose CLYSMATHANE (Fleet) squeeze bottle is ready-to-use with pre-lubricated rectal tube . . . especially designed for easy self-administration. Each unit contains 0.625 Gm. of Theophylline Monoethanolamine (Theamin, Fleet) . . . supplies prompt therapeutically adequate blood levels of Theophylline . . . no side effects, no irritation of rectal mucosa even after repeated use.

New Prescription Package contains six single-dose units of CLYSMATHANE (Fleet). Labels on the carton front and on individual units may be readily removed, if desired.

For further information, write your wholesaler or

C. B. FLEET CO., INC.

Lynchburg, Virginia

News and Notes

Associations

Air Pollution Control Association—*Dr. Rex H. Wilson*, Medical Director of The B. F. Goodrich Company, in addressing the annual meeting of the Eastern Central Section of the Association recently, stated that man's days on earth are numbered if he keeps dirtying up his planet. "Science must teach us how to decontaminate ourselves and our surroundings. If not, we will eventually find our world so polluted that we cannot live on it," Dr. Wilson said. Population growth and industrial expansion add to the volume of pollutants discharged, and every large city in the world may be plagued with smog in the future. He further added that man is more likely to suffer from radiation poisoning because of too frequent or too prolonged exposure to X-rays than from radioactive fallout of nuclear bomb explosions. Dr. Wilson suggested that industry and the health professions work together to keep the public better informed.

American Pharmaceutical Association—The Headquarters staff of the APhA continues to be very active with speaking engagements in its stepped-up public relations program (National Pharmacy Week, etc.). *Dr. Robert P. Fischelis*, Executive Secretary and General Manager, addressed the Baltimore Branch of the APhA. *Dr. William S. Apple*, Secretary-Elect, spoke on "The APhA and Professional Relations" at the Ferris Institute, Big Rapids, Michigan, and at the University of Oklahoma College of Pharmacy. *Dr. Samuel W. Goldstein* addressed the Maryland, D.C., and Virginia Section of the American Association of Clinical Chemists on "The APhA and Clinical Chemistry." *Paul Parker*, Director of the Division of Hospital Pharmacy, spoke to the Dade County Society of Hospital Pharmacists and hospital pharmacists from all over Florida during the Pfizer Seminar at Miami, Florida. He spoke on "Hospital Pharmacy Personnel" with particular emphasis on minimum standards. *Dr. Justin L. Powers*, Director of Revision, Committee on National Formulary, addressed the annual meeting of the Parenteral Drug Association on "Relation between the United States Pharmacopeia and the National Formulary with Emphasis on Parenterals." *Dr. Eric W. Martin*, Editor of THIS JOURNAL, addressed a convocation at Temple University and also the Philadelphia Branch of the APhA.

Bayonne (N.J.) Pharmaceutical Association—New officers elected at the September meeting are: *Peter Gudicello*, President; *Herman Lee*, Vice President; *Harry Gerschitz*, re-elected Treasurer; and *K. Jacob Sandler*, Executive Secretary.

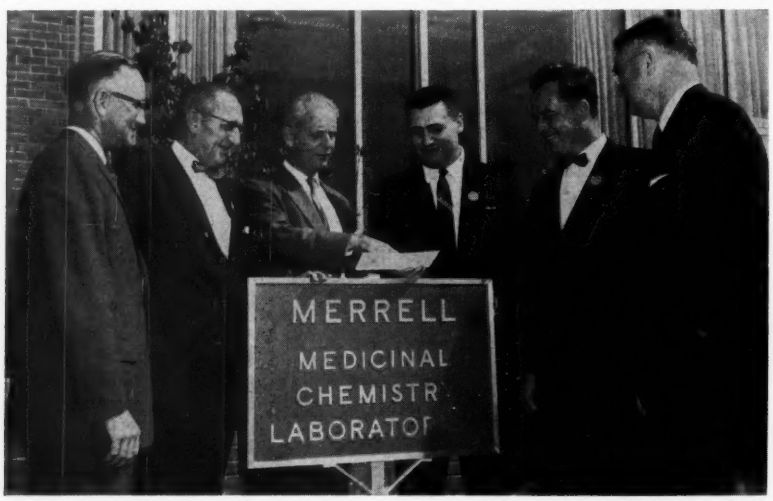
Health Information Foundation—Two new members have been elected to the Board of Directors of HIF. They are *John J. Toohy*, General Manager of E. R. Squibb and Sons, Division of Olin Mathieson Chemical Corporation, and *Lyman Duncan*, General Manager of Lederle Laboratories Division, American Cyanamid Company. Mr. Toohy was elected to fill the vacancy left by the retirement of *J. C. Leppart*, former President of E. R. Squibb and Sons and now a consultant to the corporation. Mr. Duncan was elected to fill the vacancy left by the resignation from the Board of *Dr. Wilbur G. Malcolm*, President of the American Cyanamid Company. The Foundation's Executive Committee announced the election results at its fall meeting in Washington, D.C.

Iowa Pharmaceutical Association—*Robert G. Gibbs* has been named Executive Secretary to fill the vacancy created by the resignation of *D. L. Bruner*, effective January 1, 1959. Mr. Bruner is resigning to accept the newly created post of full time Executive Secretary of the Animal Health Institute.

National Foundation (formerly the National Foundation for Infantile Paralysis)—President *Basil O'Connor* was the first layman to receive the Albert Lasker Award. He was named on October 14 for this coveted medical prize because of his work in spearheading the drive to conquer infantile paralysis. In honoring him, the Public Health Foundation said he "probably more than any other layman of modern times has contributed significantly to the substantial conquest throughout the world of a major disease of childhood, paralytic poliomyelitis." Under one of the many projects sponsored by the National Foundation, *Dr. Jonas Salk* developed his anti-polio vaccine.

National Society for Crippled Children and Adults—New headquarters offices for the Society were opened October 20 in Chicago's West Side Medical Center, 2023 West Ogden Avenue. *Dr. Dean W. Roberts*, Executive Director of the group, said the new building will make possible more efficient and economical administrative operations and will enable

Continued on page 650



PRINCIPAL SPEAKER at the dedication of the Merrell Medicinal Chemistry Laboratories was Dr. Hans Selye, Director of the Institute for Experimental Medicine and Surgery at the University of Montreal. Participants in the program included (l to r): Dr. Lloyd Parks, Dean of the Ohio State University College of Pharmacy; Nelson M. Gampfer, Wm. S. Merrell Chairman of the Board; Dr. Selye; Dr. William S. Apple, Secretary-Elect of the APhA; Harry Sand, Mayor of Reading, O.; and Dr. M. L. Moore, Vice President of the Vick Chemical Company and Member of the Richardson Pharmacy Awards Committee.

Do your customers think Rx prices are high?

Do your patients think prescription costs are high?

Many patients are startled at the cost of modern drugs which doctors prescribe in the course of treatment.

Modern medicine requires specifically ordered prescriptions, compounded of drugs manufactured under precise, careful control. Small wonder the new drugs cost more than old-fashioned "cures."

However, as you well know, when the true value of these amazing new drugs is considered they're really not *expensive* after all. For, they can save a trip to the hospital, lessen the pain of illness, mean faster restoration to health and work.

Many doctors often correct misunderstandings about cost by explaining these facts to patients when prescriptions are written . . . reminding them too, that the value of each prescription should not . . . and *cannot* . . . be measured in money.

PRESCRIPTION CONTAINERS
AN (I) PRODUCT

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Customers sometimes seem startled at the cost of prescriptions which their doctors order. They don't realize that costs of modern prescriptions are relatively low . . . and that the curative value of these modern, potent drugs actually saves them money.

In ads like this, in MODERN MEDICINE, Owens-Illinois is asking doctors to help educate their patients to the fact that costs of modern prescriptions are *not* high . . . that they have actually increased less than the general increase in cost of living.

PRESCRIPTION CONTAINERS
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News and Notes Continued from page 648

the Society to expand its services throughout the world.

Sigma Delta Theta, international fraternity of the healing arts, presented its annual award for distinguished services to the healing arts professions to *Dr. Herman C. Nolen*, President of McKesson & Robbins, Inc. The presentation was made at the fraternity's 45th Convention at Long Beach, N.Y., on September 27.

Society of Pharmacists in Industry—*Elmer H. Bobst*, Chairman of the Board of Warner-Lambert Pharmaceutical Company, spoke on October 9, at the first fall meeting of the Society, on the subject "Opportunities for Pharmacists in Industry."

Southeastern Society of Hospital Pharmacists has elected *Gilbert Colina* President. Mr. Colina, a member of APhA, is Chief Pharmacist of the Mercy Hospital, Charlotte, N.C., and has been active in retail and hospital pharmacy for many years. Other officers are: *Perry W. Cox*, Chief Pharmacist of Carraway Methodist Hospital, Birmingham, Ala., Vice President; and *Mary Wernersbach*, Chief Pharmacist, Mt. Sinai Hospital, Miami Beach, Fla., Secretary-Treasurer.

Wisconsin Pharmaceutical Association elected *William J. Koch* President at its Convention in September. A member of APhA, Mr. Koch is active in local and national pharmacy associations and is a member of the Advisory Committee of the University of Wisconsin School of Pharmacy.

Colleges

Purdue University—*Dr. Stephen Wilson*, 1st Vice President of APhA, represented the Association at the dedication of Purdue University's Memorial Center on September 26–27. The 550-room building contains libraries, an experimental theater, and facilities for student and alumni activities and for adult education programs.

St. John's University—*Hugh J. Luongo*, Associate Professor of Chemistry, has been appointed Administrative Assistant to *Dean Andrew J. Bartilucci* of the College of Pharmacy. Professor Luongo has been a member of the Pharmacy faculty since he received his pharmaceutical chemist's degree from the College in 1933. He will continue to teach chemistry in conjunction with his new duties.

APhA PRESIDENT Louis J. Fischl (r) discusses new Johnson & Johnson products with J&J Territorial Representative William H. Morton at the 60th Convention of the National Association of Retail Druggists held recently in Phila.

University of Michigan—High school students throughout Michigan were invited to attend a "Pharmacy Day" held October 18 by the College of Pharmacy. The day-long activities included an address by *Dean Tom D. Rowe*, tours of the college and university campus, special laboratory exhibits, and brief talks on careers in pharmacy. *Assistant Professor Jere E. Goyan*, who was in charge of arrangements, suggested that "Pharmacy Day" at Michigan could turn into an annual event for career-minded students.

Government

Air Force Surgeon General, *Major General Dan C. Ogle*, will retire on November 30, after almost 30 years of active service, 4 of them as Surgeon General. He will be replaced on December 1 by *Major General Oliver K. Niess* who is currently serving as Command Surgeon of the Pacific Air Forces in Hawaii.

National Institutes of Health—*Francis Boyer*, Chairman of the Board of Smith Kline & French Laboratories, has been appointed to serve through September 1960 on the National Advisory Arthritis and Metabolic Diseases Council. As a member of the Council, Mr. Boyer will advise and make recommendations to the Surgeon General and to the Director of the National Institute of Arthritis and Metabolic Diseases concerning the extramural activities of the Institute. Upon recommendations of the Council, the Surgeon General awards grants to scientists in hospitals, universities, and other nonfederal institutions conducting research on arthritis and metabolic diseases such as diabetes.

Public Health Service—Surgeon General *Leroy E. Burney* has announced the appointment of *Dr. H. van Zile Hyde* as Assistant to the Surgeon General for International Health. Dr. Hyde's duties will include liaison with the Department of State and representation of the U.S. on the Executive Board of the World Health Organization.

The National Conference on Air Pollution will be held at the Sheraton Park Hotel in Washington, D.C., November 18–20, and will be open to the general public as well as to air pollution specialists. The purpose of the conference is to develop a widespread public understanding of the air pollution problem and the necessity for resolving it, and to put into action a 10-year plan of research and control. About half the conference time will be allotted to discussion group meetings in which, after the presentation of topical papers by recognized experts, opinions of the participants will be freely exchanged and questions answered. Discussions will be of a nontechnical nature. Those interested in attending the conference should address National Conference on Air Pollution, Public Health Service, U.S. Department of Health, Education, and Welfare, Washington 25, D.C.

Industry

Abbott Laboratories' Vice President and Director of Chemical Sales, *Floyd K. Thayer*, was cited by the Chicago Chapter of the American Marketing Association as "Marketing Man of the Year" for the Chicago area.

Dr. Harold E. Zaugg, Research Scientist, is the first participant under Abbott's new program of providing opportunities for advanced science study to outstanding members of its scientific staff. He will attend the graduate school at Purdue University.

William G. Knapp has been appointed Division Manager for Abbott Laboratories International Co., and *Cornelius B. Evers* named to succeed Knapp as Manager of the South Africa Division of Abbott Universal Ltd. Headquarters for both are in the Abbott export offices in Chicago.

Alcon Laboratories—President *W. C. Conner* recently announced the appointment of *Dr. Earl Maxwell*, retired Air Force Brigadier General, to the newly created position of Medical

Director of the firm. Dr. Maxwell was chosen for his extensive experience in various phases of Ophthalmology, as well as for his administrative abilities. Alcon specializes in ophthalmic and rhinologic medications.

American Cholesterol Products, Inc., of Amerchol Park, Edison, N.J., has announced the appointment of Whittaker, Clark & Daniels of New York as its Export Sales Representative.

Bristol Laboratories—*Roland H. Noel* has been named Director of Sales Promotion, a position in which he will be in charge of domestic advertising and all other phases of promotion and will also supervise the company's public relations program. A graduate of the Massachusetts College of Pharmacy, from which he also holds a Master of Science degree, he served with Burroughs Wellcome before joining Bristol in 1946.

Victor T. Johnson has been appointed Vice President and Director of Marketing to succeed *Richard A. Anderson*. Mr. Johnson's wide experience in pharmaceutical industry includes his position as General Manager of the Smith-Dorsey Company beginning in 1952.

Recent promotions include that of *Dr. Amel R. Menotti* to Scientific Director, in which capacity he will supervise the operations of Bristol's medical and research divisions, and *Dr. H. Leo Dickison* to Director of Pharmacologic Research. Before joining Bristol in 1947, Dr. Dickison was Assistant Professor of Pharmacology at Vanderbilt University School of Medicine.

Ciba—"Stroke," a live television program broadcast in April 1957 from the General Rose Memorial Hospital in Denver, showing how stroke victims can be helped by early rehabilitation, was the winner of a Blakeslee Award for its contribution to public understanding of progress in the field of circulatory diseases. The program, sponsored by Ciba, was a part of the 1957 series done for "Medical Horizons" over the ABC-TV network.

Irwin, Neisler plans to begin construction of a new laboratory building sometime next spring. The 30-acre site on which the laboratory will rise can also accommodate more intensive expansion in the future. The projected building operation will be the 72-year old company's fourth expansion since 1930.

Lederle Laboratories.—*Miss Elizabeth Boykin*, Assistant to the Librarian, participated in a panel discussion before the Federation International Pharmaceutique at Brussels in September. She delivered a talk in French on steps in expanding sources of drug information. Miss Boykin, who has been with Lederle since 1953, co-authored a similar talk before the Pan American Congress of Pharmacy and Biochemistry in Washington last year. A graduate of Vanderbilt University, with an M.L. degree from Emory University, she is Chairman of the Drug Information Sources Committee of the Special Libraries Association. Librarians from Squibb Institute for Medical Research also participated in the Federation program.

Lehn & Fink Products Corporation—*Dr. Emil G. Klarmann*, Vice President in Charge of Technical Services, has been named recipient of the Achievement Award of the Chemical Specialties Manufacturers Association. The award will be presented in New York on December 10. Dr. Klarmann, who is being honored for his work in the fields of disinfection and sanitation, has been instrumental in the development of the nontoxic formula for Lehn & Fink's Lysol Brand Disinfectant, as well as of other professional disinfectants and surgical germicides. Dr. Klarmann joined Lehn & Fink as staff chemist in 1924, becoming Vice President in Charge of Research in 1940. He was appointed to his present position in 1953.

Eli Lilly and Company—*Kenneth S. Griswold*, Manager of the Company's Albany District since 1942, retired September 30 to become Secretary of the New York State Board of Examiners for Pharmacy. A 1921 graduate of the Albany College of Pharmacy, Mr. Griswold was in the retail drug business before joining Lilly as a representative in 1929. A member of APhA, Kappa Psi, and the New York, Connecticut, and Vermont Pharmaceutical Associations, he is also Vice President of the Board of Trustees of the Albany College of Pharmacy.

Lilly's representative in Alaska, *Leonard Barnes*, uses amphibious aircraft and pontoon planes to cover the 586,400 square miles of his sales area. His territory, the largest serviced by a Lilly representative, was established 4 years ago. Mr. Barnes, who has been Alaska representative since April 1957, is a registered pharmacist in Montana and Oregon and is a member of APhA.

Meer Corporation of New York has announced the opening of their new botanical drug and gum warehouse in Chicago at 325 West Huron Street. The firm's Chicago stock will include a complete line of water soluble gums and most nonperishable drugs and extracts. The move is part of a plan to expand Meer facilities and service to customers all over the country.

Merck & Company—Executives and research men have begun an introductory course in the Russian language, an off-campus program set up by Union Junior College in cooperation with the company's technical information department. The course, designed to help Merck officials read Russian scientific texts in their work, is at present open to a limited number of students. In future, however, it may be extended to other personnel who need Russian in their work.

Merck will discontinue distribution of Knoll Pharmaceutical Company products on November 15. Knoll, which has traditionally supplied the sales and promotion efforts for this line, will now take over the distribution of the 28 pharmaceutical specialties involved.

Parke, Davis & Company has announced the appointment of *George W. Meals* to the firm's Hospital Medical Service Division. A graduate of the University of Pittsburgh School of Pharmacy, Mr. Meals joined Parke, Davis in 1949.

A. H. Robins Company—*Dr. Marcus N. Carroll, Jr.*, joins the firm as Pharmacologist and *Dr. Oscar Klioze* as Director of Product Development. The increase in staff is designed to enable the company to develop and market new and more effective drugs. Dr. Klioze is a member of the APhA.

Richard A. Velz was appointed Director of Public Relations recently to handle press, public, and community relations for Robins.

Wallerstein Company has acquired a British affiliate, Wheeler & Huisking, Ltd., 26 Great Tower Street, London, a firm engaged in the importation of crude oils, drugs, spices, essential oils, and chemicals. Commenting on

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this acquisition, Wallerstein President *Arthur C. Emelin* expressed his company's hope that through such moves relations with England and other areas of Europe might be strengthened. Wheeler & Huisking have acted as agents for Wallerstein Company for many years.

West-ward Pharmaceutical Company—Recent personnel changes include, *Sheldon O. Davis* promoted from Production Manager to General Manager; *James T. Bollettieri* appointed Vice President in Charge of Sales; and *C. William Salm* named Chief Chemist in Charge of Quality Control.

International

India—The Haffkine Institute in Bombay will celebrate its Diamond Jubilee, January 10–14, 1959, in observance of its 60 years of service to medical research. The sessions, which will be introduced by the President of the Republic of India, will include lectures and seminars on such topics as poliomyelitis, cholera, influenza, rabies, and snake and insect bite treatment. All these subjects will be discussed at the international, as well as local, level. Scientists, scientific organizations, and other learned societies are invited to attend or to send delegates so that the exchange of ideas may be encouraged. For further information please address *Dr. H. I. Jhala*, Director, Haffkine Institute, Parel, Bombay-12, India.

Pakistan—The Third Pakistan Pharmaceutical Conference and Exhibition will be held in Karachi, November 28 to December 2. The program includes presentation of scientific papers, symposia on Pharmacy education, legislation, and industry, and an exhibition of pharmaceuticals, cosmetics, and allied items. Those interested in pharmaceutical research are cordially invited to attend the meetings. Further information may be obtained from 28, Aziz Chamber, Wadhumal Udharam Road, Karachi 1, Pakistan.

Retailing

L. D. Bracken Prescription Pharmacy's owner, *Jim L. Bracken* of Seattle, Wash., was recently welcomed to membership in the Squibb Advisory Council, which is comprised of 10 pharmacists representing different areas in the U.S. and was formed to encourage an exchange of ideas and opinions on pharmaceutical matters between the manufacturing and retail phases of Pharmacy. Mr. Bracken, a member of APhA and of the Board of Directors of the American College of Apothecaries, holds a degree in Pharmacy from the University of Washington. His father, the late *L. D. Bracken*, was also a member of the Squibb Council.

West Shore (Harrisburg, Pa.) Chamber of Commerce—*Chauncey E. Rickard* was appointed Executive Secretary last month. Formerly consultant to the Narcotic Department of the State Department of Health, Mr. Rickard has been active in pharmacy organizations for many years. He was Secretary of the Allegheny County Retail Drug Association from 1932 to 1938 and Secretary of the Pennsylvania Pharmaceutical Association from 1938 to 1957. He owned a pharmacy in Pittsburgh from 1929 to 1940. A graduate of the University of Pittsburgh, Mr. Rickard is a member of APhA.

VASELINE® PETROLATUM GAUZE U. S. P.

NEW SUGGESTED RETAIL PRICES

New Stock No.	Former Stock No.	Size	Box of 6
4126	3687	1" x 36"	$1.42
4146	3667	3" x 18"	1.64
4156	3657	3" x 36"	2.21
4166	3677	6" x 36"	3.64
4116	3697	½" x 72" (Selvage-Edged Packing)	2.94

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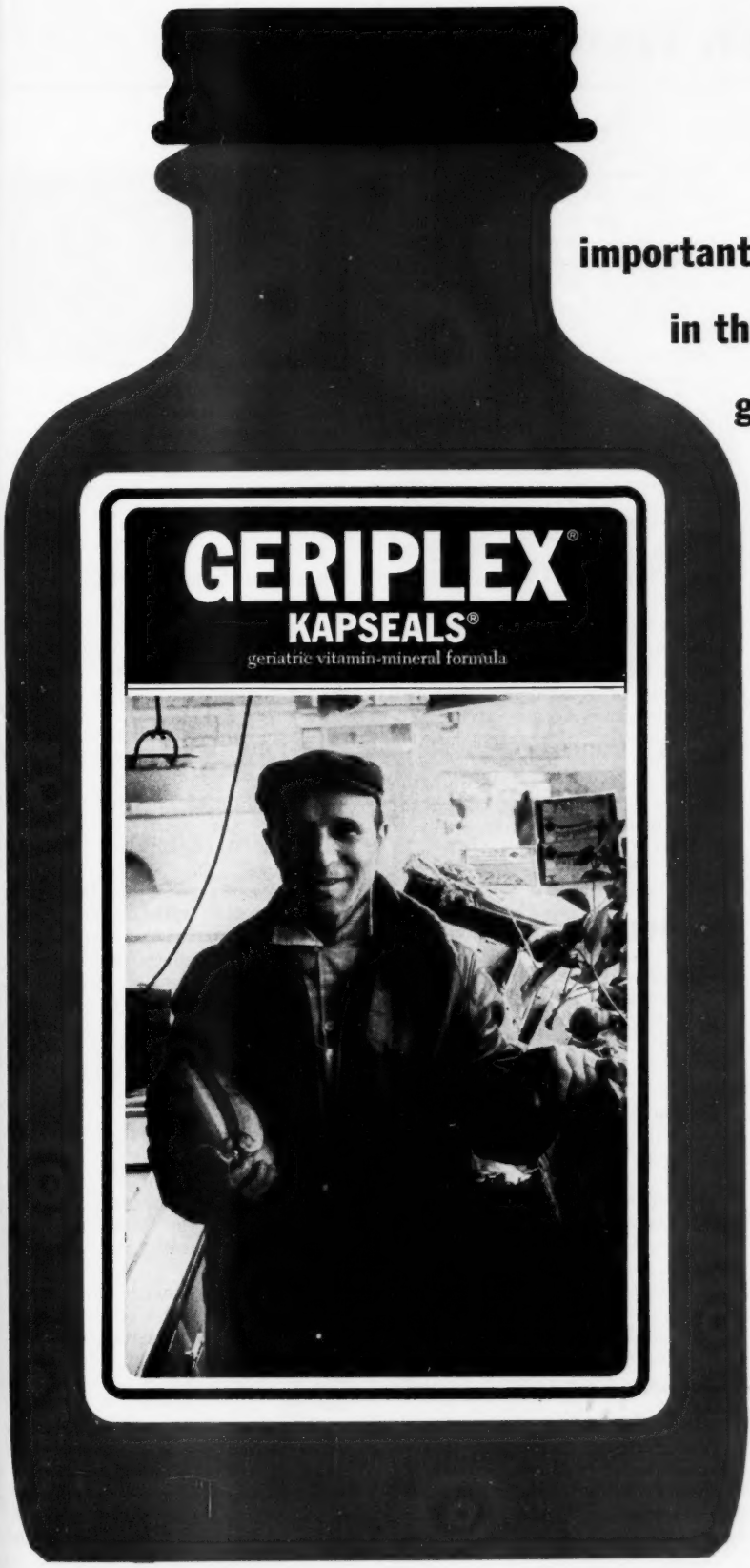

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GERIPLEX will please your middle-aged customers with the way it helps them to keep fit. They will be grateful if you suggest GERIPLEX as their year round vitamin and mineral supplement.

Display and recommend GERIPLEX Kapseals to *all* your "over-40" customers.

Supplied in bottles of 100 and 500.

PARKE, DAVIS & COMPANY
DETROIT 32, MICHIGAN

Branch News

Local Branches

Baltimore Branch—*Dr. Robert P. Fischelis*, Executive Secretary and General Manager of the APhA, addressed this branch during National Pharmacy Week, his subject "Our Professional Prerogatives Are at Stake."

Chicago Branch—Members met September 10 to discuss plans for a "University of Illinois Night" dinner to honor *Dean George L. Webster*, Head of the Illinois College of Pharmacy, and his faculty. This is to be sponsored in cooperation with 5 state pharmaceutical organizations, the presidents of which were introduced.

Philip Ritzlin, First Vice President of this branch, will succeed *R. David Allen* as 1959 President, as Mr. Allen has been transferred to Washington, D.C.

Indianapolis Branch—A "Kick-off" meeting was held at the Butler University College of Pharmacy on September 24. *Louis Kazin* spoke on "The Year Ahead for Pharmacy," his talk emphasizing problems and weaknesses affecting the future of Pharmacy, advantages of prescription price scheduling, the effect of public relations on all phases of Pharmacy, and suggestions for solving the problem of nonprofessional outlets of drugs. *Kenneth M. Wood* was elected to fill the office of President, vacated by the resignation of *Joseph E. McSoley*.

New Orleans Branch—The Creed Award of the Greater New Orleans Tuberculosis Association has been presented to this branch in recognition of their having distributed 35,000 folders during TAGNO's recent educational campaign. *Ben Bavly*, Secretary, accepted the award for the group from *Dr. W. H. Harris, Jr.*, campaign chairman.

Northern New Jersey Branch—*Dr. John L. Voigt*, Program Chairman, announced that *Maurice Mermey*, Executive Director of the Bureau of Education on Fair Trade of New York, will discuss the "Significance of Fair Trade" at their November 19 meeting to be held at Rutgers University.

Northwestern Branch—*Dr. Frank DiGangi*, APhA Delegate, spoke on the September 17 meeting; *Dr. George Hager* reported on AACP student recruitment problems; and a movie was shown. The coming season's program was discussed.

Philadelphia Branch—In observance of National Pharmacy Week *Dr. Eric W. Martin*, Editor of THIS JOURNAL, was guest speaker invited to address an assembly of members at Temple University on October 8. His address, "Prediction," emphasized all that the future can mean to Pharmacy. He was presented with a handsome glazed pottery apothecary jar as a momento of the occasion.

Puget Sound Branch—*Dr. Varro E. Tyler*, Associate Professor of Pharmacognosy, College of Pharmacy, University of Washington, spoke on "Hallucinogenic Agents" at the September meeting, illustrating his talk with slides. *Dean Maurice J. Hickey*, of the University of Washington School of Dentistry, was speaker at the annual banquet held October 14 at the Fort Lawton Officers' Club in Seattle.

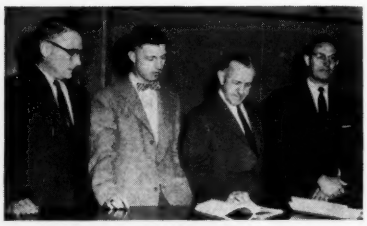
Student Branches

Creighton University—*Dr. James M. Crampton* will succeed *William Nelson* as faculty adviser. Dr. Crampton was formerly with the faculty at Xavier University.

Fordham University—*Dr. Louis N. Elowe* will succeed *Professor Alfred J. White* as Faculty Adviser.

Massachusetts College of Pharmacy—At their opening meeting of the season, which featured a panel discussion, *Fred A. Lawson*, President of E. L. Patch Co., presented members with complimentary copies of the H.N.I. publication "Facts about Pharmacy and Pharmaceuticals" and a supply of printed 1958–59 program schedules.

Ohio Northern University—1958–59 officers elected will be *William L. Factor*, President; *Rodger L. Cliff*, Vice President; *Harriet Ellen White*, Secretary; and *Robert F. Wetzel*, Treasurer.



MASSACHUSETTS COLLEGE OF PHARMACY panel discussion "Pharmacy, Past and Future" featured speakers (center to right) John Webb, Mass. General Hospital; Fred A. Lawson, E. L. Patch Co.; Leonard F. Tibbetts, Sears & Tibbetts, Inc.; and Dr. John W. Schermerhorn (l), who served as moderator.

Southern College of Pharmacy—1958–59 officers elected are *James O. Blackburn, Jr.*, President; *Robert H. Poole*, Vice President; *Robert D. Sinyard*, Secretary; and *Reginald P. Pye*, Treasurer.

Temple University—400 student members attended a midday rally session October 8 to hear *Dr. Eric W. Martin*, Editor of THIS JOURNAL, his theme in the spirit of National Pharmacy Week entitled "Talk up Pharmacy." Dr. Martin's address touched on the history of Pharmacy and comparison with modern Pharmacy. He spoke of the many opportunities in Pharmacy and stressed that good impressions are essential for gaining more prestige in the public eye. Student branch officers were introduced, and it was announced that the first student debate would be on "Unions in Pharmacy."

Texas Southern—*L. V. Grant*, Past President of the APhA Student Branch, and a junior in the TSU School of Pharmacy, has been awarded a scholarship by the Houston Wholesale Beer Distributors Association.

University of Arizona—Three members of this student branch have been awarded scholarships to the University of Arizona College of Pharmacy. *Wilson Bow Woo*, sophomore, of Winslow, has received a $200 grant as tie-winner of the Andrew Martin Scholarship; *Vera Mae Schaunaman*, junior, of Bisbee, who will receive the Phi Delta Chi $100 grant, is treasurer of this branch; and *Walter Lindner*, junior, of Douglas, is recipient of the Evelyn Mills Scholarship of $250.

The REAL Wonder Drug!

AND REASONS WHY YOU SHOULD GIVE BAYER ASPIRIN MAXIMUM DISPLAY

1. **BAYER ASPIRIN is the fastest-turnover drug item in America . . . and right today it continues to set new sales records.**
2. **As a traffic builder Bayer Aspirin has never had an equal . . . it has no equal today among packaged medicines.**
3. **Put it in the hottest spot . . . the most valuable space in your store . . . *and Bayer will pay its way* . . . and then some! Bayer Sells on Sight.**
4. **Saturation Advertising that reaches *every one* of your customers through Television, Radio, Magazines, Sunday Supplements and Daily Newspapers is pushing Bayer sales up to new all-time highs. Tieing your store to successful advertising like this always pays off *big!***

Parke-Davis vitamin products for

vitamin protection...whatever the need

protection for the young

ABDEC® DROPS

Provide 9 important vitamins in a carefully balanced formula for the prevention of deficiency states in infants and children. In 15-cc. and 50-cc. bottles with calibrated dropper. No refrigeration required.

A·D·C DROPS WITH VITAMIN B_6

Contain 4 important vitamins in readily-miscible form to aid infants and children in achieving optimal health and development. In 15-cc. and 50-cc. bottles with graduated dropper. No refrigeration required.

PALADAC®

Provides 9 important vitamins in palatable, nonalcoholic liquid form at potencies exceeding minimum daily requirements. Especially suitable for growing children and for adults who prefer liquid preparations. In 4-oz. and 16-oz. bottles. No refrigeration required.

ABDOL® WITH MINERALS FOR CHILDREN

Supplies 10 vitamins and 10 minerals in a soluble gelatin capsule for the prophylaxis and treatment of multiple vitamin and certain mineral deficiencies. In bottles of 100 capsules.

protection for adults

ABDOL® WITH VITAMIN C CAPSULES

Economically supplement dietary vitamin intake; useful in preventing development of vitamin deficiencies in adults, adolescents, and pregnant or lactating women. In bottles of 25, 100, 250, and 5,000 capsules.

ABDOL® WITH MINERALS CAPSULES

Provide a carefully balanced formula for correction or prevention of vitamin-mineral deficiencies in adults, adolescents, convalescents, and pregnant or lactating women. In bottles of 100, 250, and 5,000 capsules.

GERIPLEX® KAPSEALS®

Contain 9 vitamins, 5 important minerals, and the starch digestant, TAKA-DIASTASE.® Especially designed for use as a daily supplement by middle-aged and older people. In bottles of 100 and 500 Kapseals.

high potency vitamins

ABDEC® KAPSEALS®

Supply 10 important vitamins for optimum routine protection against vitamin deficiencies. Recommended for

older childre
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and 5,000 K

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For preven
deficiencies
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cts for every member of the family

over a third of a century, Parke, Davis & Company has maintained its leadership in the vitamin field. A respected name, heavy selling and constant ethical promotion assure you steady sales of all Parke-Davis vitamin products. Stock them for profit and prestige.

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older children, adolescents, and adults. In bottles of 50, 100, 250, and 1,000 Kapseals.

MYADEC® CAPSULES

A comprehensive nutritional aid, MYADEC provides 9 vitamins in therapeutic potencies and 11 minerals in significant quantities, in an easy-to-take soluble gelatin capsule. In bottles of 30, 100, 250, and 1,000 capsules.

for B complex protection

COMBEX® KAPSEALS®

Supply Vitamin B complex factors, including B_{12}, for prevention or correction of Vitamin B complex deficiencies; equally useful for growing children, pregnant or lactating women, and other persons with increased metabolic requirements. In bottles of 100, 500, 1,000, and 5,000 Kapseals.

COMBEX® WITH VITAMIN C KAPSEALS®

For prevention or treatment of Vitamin B complex deficiencies coexisting with ascorbic acid deficiency. In bottles of 100, 500, 1,000, and 5,000 Kapseals.

THERA-COMBEX® KAPSEALS®

Contain B complex factors, including B_{12}, and Vitamin C in therapeutic potencies. In bottles of 100 and 1,000 Kapseals.

TAKA-COMBEX®

Provides important B complex factors and vitamin C, plus the starch digestant TAKA-DIASTASE,® to prevent vitamin deficiencies and to aid carbohydrate digestion. Especially valuable for convalescents, older persons and others with impaired digestion. TAKA-COMBEX Kapseals contain vitamins, liver concentrate, and TAKA-DIASTASE; in bottles of 100 and 1,000 Kapseals. TAKA-COMBEX Elixir contains vitamins and TAKA-DIASTASE only; in 16-oz. bottles.

protection during pregnancy and throughout lactation

NATABEC® KAPSEALS®

Provide vitamins and minerals to help meet increased demands for optimum nutritional requirements during pregnancy and lactation. In bottles of 100 and 1,000 Kapseals.

Current Comment

Ban on Shipping of Biologicals by Air Rescinded

Vigorous protests, triggered by the Pharmaceutical Manufacturers Association, the Public Health Services, and the American Medical Association, as well as many hospitals, laboratories, and physicians concerned, have caused the U.S. Post Office Department to abandon the decison to exclude etiologic shipments—that is the transporting of bacterial cultures, toxins, viruses, and other biological products and materials to make such products—and rescind the notice of the proposed new ruling.

September 22 had been set as the deadline to allow interested parties to present written views in opposition, and after carefully evaluating these comments submitted against the proposed amendment (published Aug. 23, 1958, as *Federal Register* Document 58–6897), the P.O. Dept. has decided to continue accepting such shipments for mail, airmail, etc.

Agitation favoring the proposed amendment because of passenger safety was spurred by the Civil Aeronautics Board, the I.C.C., and certain American airlines, placing an embargo on such shipments, as far as air freight and air express were concerned. Those airlines bound by contract with the Government will continue to carry these shipments, as the P.O. Dept. will enforce air transport of anything it accepts for mailing.

The argument of those most vigorously opposing the ban was that it often is vitally important for such shipments to reach laboratories for diagnostic work in respect to disease control during epidemics. However, intense research on completely dependable packaging and containers, which is of primary significance to the safety problem involved, will be the first consideration of Government agencies, hospitals, and manufacturers.

Taper-off Retirement

The great physical and emotional shock now experienced by the sudden change from active employment to retirement would be softened as the result of a new proposal.

James C. O'Brien, Personnel Director of the Department of Health, Education, and Welfare, describes the new plan as a "step retirement" or a "tapering-off" plan which would allow full retirement at age 62 or older for those who are eligible, but those retiring would be immediately rehired. The employee would then work a gradually-decreasing portion of his time for 5 years, or upon attainment of age 70 when he would retire completely. He would also have the option of retiring completely at any time during that period.

Mr. O'Brien said:

"Management would stand to benefit as well by having a reasonable time to train understudies and by being able to face up frankly to the wishes of many capable employes to be relieved of the pressures of a full-time job without ceasing to work altogether."

PA Supports Pharmacy

The Proprietary Association has estimated that "recognition of Pharmacy" announcements on television programs sponsored by member companies of the association were viewed by a total combined audience of over 186,000,000 persons during National Pharmacy Week, October 5–11.

In addition, a combined total of 518 radio stations carried spot announcements saluting Pharmacy during that week. These were heard over radio programs sponsored by PA members with an estimated listening audience of over 6,000,000 people.

Additional television and radio coverage during National Pharmacy Week was arranged for by many PA member companies. This is the third year of cooperation by the Proprietary Association with the AMERICAN PHARMACEUTICAL ASSOCIATION in recognition of National Pharmacy Week, but it is the first year in which a concerted effort has been made to encourage the use of Pharmacy messages on the national television and radio networks by PA member companies.

Ethical Restraints in Advertising

In recent discussions and speeches, Kenneth L. Brown, Advertising Director of Wyeth Laboratories, Radnor, Pennsylvania, has been pointing out how pharmacists fall by the wayside and permit themselves to downgrade their professional standing by practices that are often unethical, out of order, unwarranted, uncalled-for, unjustified, and unprofitable. A few of these are:

1. Putting the name of a prescription drug up on a huge banner in the store. . . "YES, WE HAVE MILTOWN."
2. Giving trading stamps with prescriptions with an added bonus of, say, double stamps on Wednesdays.
3. Actually making derogatory comments on the professional standing of competitive pharmacists or implying that competitors are ill-prepared professionally, that your drugs are fresher, cheaper, cleaner than those of your competitor.
4. Still another unethical practice is that of a new pharmacy distributing an offer of a dollar discount if residents of a neighborhood will bring their prescription re-fills to the new pharmacy.
5. One that never fails to alienate the medical profession is that of offering on radio, TV, or by mail an invitation to customers to come by the drug store for health items and to see Doc Jones. There is nothing better calculated to lose the respect of the physician.
6. Another bad practice is that of soliciting the names of physicians' nurses and secretaries and offering them merchandise on discount, with the obvious implication of the future favor of steering Rx customers to that drug store.

Important Gathering

From many foreign countries and the United States, came many brilliant minds to form one of the largest assemblages of persons interested in the field of antibiotics ever brought together, when on October 15, 1958 the Sixth Annual Symposium on Antibiotics convened.

Dr. Henry Welch in his opening remarks pointed out that during the 3-day meeting 27 papers from 14 foreign countries and 89 papers from the U.S. would be presented out of a total of 200 submitted.

Although it was just 30 years since the discovery of penicillin by Sir Alexander Fleming, and only 10 years since the broad-spectrum antibiotics became available for clinical use, now 2,500,000 pounds of antibiotics are produced annually in the United States alone. A historian's impressions of the first three decades of antibiotic therapy were presented by Dr. Félix Martí-Ibáñez, Professor of the History of Medicine, New York Medical College and Editor-in-Chief of *MD*. He said:

"Thirty years ago penicillin was discovered and 10 years ago broad-spectrum antibiotics were introduced. Let us note the difference between these two achievements of the Antibiotic Age. The first was accomplished by one man alone, as in the days of Pasteur; the second, by a team of men dedicated to tracking down an antibiotic as persistently as safari hunters track down their quarry. This latter fact detracts nothing from the historical importance of the event, but it marks the development of a new mental and social attitude in research. . . .

"Now is the time to pay due honor to the memory of one of Fleming's forerunners who anticipated the discovery of penicillin by 31 years. I refer to Ernest Augustin Clément Duchesne, a French army physician who died of tuberculosis at the age of 38 years, who in 1897 published his doctoral thesis on the antibacterial action of hyphomycetes and demonstrated experimentally that cultures of *Penicillium glaucum* decreased the virulence of highly pathogenic microbes such as *Bacillus coli* or *Bacillus typhosus* in inoculated animals.

Continued on page 671

NEO-SYNEPHRINE® COMPOUND Cold Tablets

MORE COMPLETE CONTROL of common cold syndrome

100 TABLETS N-780
NEO-SYNEPHRINE® COMPOUND
Cold Tablets
Each tablet contains:
Neo-Synephrine HCl (brand of phenylephrine HCl) 5 mg.
Thenfadil® (brand of thenyldiamine) HCl 7.5 mg.
N-acetyl-p-aminophenol 150 mg.
Caffeine 15 mg.
For the relief of nasal stuffiness, indisposition, headache and the other aches and pains of colds. Helps to reduce nasal discharge (running nose) and fever (antipyretic effect).
Winthrop LABORATORIES
NEW YORK 18, N.Y.

This orally effective decongestant, analgesic, antipyretic and antihistaminic tablet is a new addition to the famous Neo-Synephrine line which will be intensively promoted to physicians in your area.

Order Today!
Be prepared for the coming "COLD" season

BOTTLES OF 20, 100 and 1000 TABLETS

NEO-SYNEPHRINE COMPOUND Cold Tablets

Winthrop LABORATORIES
1450 Broadway, New York 18, N.Y.
PHARMACEUTICALS IN DAILY DEMAND
ETHICALLY ADVERTISED AND DETAILED

Neo-Synephrine (brand of phenylephrine) and Thenfadil (brand of thenyldiamine), trademarks reg. U.S. Pat. Off.

Letters

"Time for a Movie"

Sir:

Your idea for a movie on Pharmacy as expressed in your editorial in the September issue of the Journal is an excellent one, and I want to commend you highly for expressing your idea editorially.

The Committee on Recruitment Aids of the AACP has discussed the desirability and necessity of having a National Educational Advertising campaign on Pharmacy which would portray all of its various aspects and activities and the opportunities therein to parents, high school teachers, students and public in general. It has been all too frequently demonstrated that when the public thinks of Pharmacy, it is thinking primarily of retail pharmacy as seen in the home town and, unfortunately, this picture is not sufficiently appealing and motivating to attract the numbers and types of students that we want to get into the profession.

There is badly needed some effective means of educating the public in general to the fact that there are many other facets of Pharmacy other than what they see on Main Street or in their communities. We have been thinking of a series of full page educational advertisements in some of the widely read magazines to be sponsored by the pharmaceutical industry, and your idea for a movie would be a very effective component of such an educational program.

Lloyd M. Parks
Dean, College of Pharmacy
Ohio State University

Editors' Note: The idea as expressed in the editorial has occurred to a number of people in the past. Let us hope that it can bear fruit soon.

Sir:

I have read your editorial in the September issue of the Practical Pharmacy Edition of the *Journal of the American Pharmaceutical Association.* I wish to compliment you on this editorial. It deals specifically with the problems that I have been discussing for a great many years at various meetings I have attended representing especially the drug industry. I note you say in the editorial that it is highly commendable to support medicine and all the other members of the health team and that we must continue to do that. I am in entire agreement with this, but you go on to say let us not be so philanthropic or misguided in our thinking that we support the rest of the team exclusively and completely neglect ourselves. I have been stressing this idea for many years.

I do not know just how to bring this editorial to the attention of the industry, but I feel that some way should be found, and I would suggest that you and Dr. Fischelis give the problem your careful consideration.

H. A. B. Dunning
Chairman of the Board of Directors
Hynson, Wescott and Dunning, Inc.
Baltimore 1, Maryland

Sir:

10:30 a.m. October 11th—I have just completed reading your marvellous editorial. There is no need for me to tell you how I fully appreciate the thought and the work and the time taken by you in putting this article together. As you know it has been in the back of my mind for so many years. I have sort of lived it. Now I think we can get somewhere.

I am going to ask Doug Denholme and Gib Henderson in our office to work on a resolution to be presented to the CPhA Council in February covering all the aspects of promotion as far as the setting up of a committee to start on this project. This committee would, naturally, have to have American and Canadian participation and our contribution should be on a per capita basis.

Should you like to work with these men so that your group could have the same resolution presented at approximately the same time—this, I feel, would be a good way to approach the thing.

I could tell Stan Rice what we have done and send him a copy of your editorial. Also I will endeavour to get Sir Hugh Linstead interested as well as the group of manufacturers in Basle, Switzerland, as that seems to be the pharmaceutical centre of Europe.

Finally, you had better send me a dozen re-prints of your editorial or a dozen copies of the September issue of the Journal.

Austin W. Macdonald
Macdonald's Prescriptions, Ltd.
Vancouver 1, B.C., Canada

Manpower Shortage

Sir:

After reading the recent article concerning the manpower shortage in Pharmacy, I felt it would be good idea if reprints of the report be sent to the proper personnel in the Selective Service System. It is time that our profession be recognized as a critical skill and be given the immunities shared by other professional and semiprofessional groups.

A young pharmacist who returns from active duty and has to spend one night a week with a reserve unit is sure in a predicament after purchasing his own pharmacy. Pharmacists should be able to become exempt from their two weeks summer training and their weekly obligation should also be reduced to less frequent meetings.

I myself am going to present this report to my local draft board.

Marvin G. Frank, R.P.
37 Dewey Street
Newark 12, N.J.

Sir:

A great deal has been written regarding manpower shortage in Pharmacy and recruitment programs to relieve the shortages. I wonder how many of us are doing something on a local level to help relieve the shortage. When I bought this store some 6 years ago I was surprised to learn that our local high school did not even have Pharmacy listed on their Career Day. This is an event sponsored by the local Rotary Club—a day set aside on which Junior and Senior students can visit and interview people in all types of business, factories, professional people, etc., to help them decide on a career. It was no trouble at all to get the school to list Pharmacy, along with other professions. I have had two or three students to visit me each year, and have one graduate who has passed the board and is now serving in the Army, and I have two more boys who are now enrolled in Purdue School of Pharmacy. This is something that most any pharmacist can do—most high schools have something that is comparable to our Career Day—all it takes is some effort to get recognition and get a few students interested.

Phillips Pharmacy
112 North Main Street
Goshen, Ind.

Fair Trade

Sir:

Fair trade national enforcement act is without public interest, will burden taxpayers, help manufacturers to enforce higher prices, more enforcement, less freedom.

If we are truly a profession, why must we live only thru enforcement? No other health profession is so policed, overburdened with regulations.

Arthur P. Grossman
Oakland, N.J.

Editorial

Drug Distribution Problem

A fact finding APhA Conference on Drug Distribution, which promises to be fruitful, was held on October 29 in Chicago as a result of are commendation, made at the Los Angeles Convention by Chairman Gesoalde of the APhA House of Delegates, to the effect that:

"all those who agree with us that potentially harmful proprietary drugs and medicines should be sold only in retail pharmacies should get together in an all-day conference and devise the strategy to be followed and then go ahead."

A total of about 100 persons interested in the "restrictive sales" problem presented a large volume of opinions and factual information which was recorded. The transcription will serve as a basis for further study, analysis, and planning.

This gnawing, irritating controversy, faced by retail pharmacy over many decades, is as ancient as pharmacy itself. Pharmacists, who believe that they should distribute all drugs, are primarily concerned because they recognize that nonprofessional distribution endangers public health.

As Dr. Fischelis pointed out at the recent meeting of the Federal Wholesale Druggists' Association, less than 100 years ago there was no such thing as an organized profession of pharmacy in the United States. State pharmacy laws actually did not begin to appear until about 1870, and then were passed only because pharmacists compromised and allowed exemptions from the ideal situation wherein drugs, medicines, and poisons would be distributed only by properly qualified persons. These exemptions, plus semantic difficulties with the definitions for "patent medicines," "proprietary medicines," and "household medicines," have formed the basis for the long-lasting drug distribution controversy.

Until 1938 the composition of numerous drugs, promoted directly to the consumer and sold in original packages without any further preparation or compounding, was not revealed. The argument that the pharmacist could not give any more advice or protection to the consumer than the grocer as far as these products were concerned was then valid. Now, however, since 1938 with the enactment of a modern Food, Drug, and Cosmetic Act, this argument has fallen by the wayside. Now, Dr. Fischelis pointed out, pharmacists can give professional advice about all drugs. He said:

"If restrictions are in order to protect the public health, they should be applied equally to all potentially harmful products."

During the APhA Drug Distribution Conference in Chicago, practically all aspects of the controversy were presented. Discussions covered topics ranging from dangers of self-medication to the fact that caution statements do not decrease the toxicity of a drug. A proposal was made that there should be a continuing *ad hoc* committee in pharmacy to serve as a source of information and legal advice.

Among the large number of opinions and recommendations made during the conference, the following were some of the more significant:

1. All drugs, including potentially harmful proprietary drugs (patent medicines), should be sold only by licensed pharmacists.
2. The effort to bring all drugs under professional supervision should not be abandoned.
3. A few household remedies and nontoxic, non-habit-forming, nondeleterious proprietary medicines may have to be released for general distribution.
4. Modern proprietary medicines are potent drugs unlike the old familiar household remedies.
5. The public is not competent to judge drugs and must be protected for its own good.
6. An advisory committee working with the FDA should determine which drugs can be sold in nonprofessional outlets.
7. A public relations program, with the support of the other health groups, should picture the pharmacist as indispensable for public health.
8. A program of educating the public that drugs should be purchased only in pharmacies should be carried out with the help of public health authorities, voluntary health organizations, and other influential bodies.
9. When presenting retail pharmacy's case to the courts, well substantiated facts should be presented, and those who are representing retail pharmacy should be well informed and should have a well prepared case.
10. Drugs which have borne prescription legends should be permanently restricted and sold only by pharmacists.
11. Manufacturers and wholesalers should be prevented from distributing to nonprofessional outlets.
12. Pharmacy should put its own house in order by abandoning self-service, open displays, and other nonprofessional techniques.

The APhA Committee on Legislation now, for the first time, has gathered together the total picture on the drug distribution problem. By means of a state-by-state roll call all areas of our country have now gone on record. During the gathering of facts and opinions, the suggestion was made that a Summit Conference of leaders in the Proprietary Association and in pharmaceutical education, manufacturing, and distribution be created. If the Committee on Legislation is successful in having the necessary Federal legislation enacted which would establish such a powerful agency within the framework of the Food, Drug, and Cosmetic Act, hope is bright indeed that a satisfactory solution to Pharmacy's most difficult problem will be finally forthcoming.

Eric W. Martin

STRAIGHT FROM Headquarters

Robert P. Fischelis,
Secretary

Drug Trade Conference Statement on Distribution Control

In the extended controversy now in progress with respect to proper legislative control of the distribution of drugs, the part played by the National Drug Trade Conference is frequently alluded to. It is apparent that there is considerable misinformation abroad with reference to the efforts of the Conference. Accordingly, the Executive Committee of the Conference considered it advisable at a meeting held on October 24 in Washington, D.C. to point out just how and why the Conference became a participant in the discussion on the subject. The following statement was authorized by the Executive Committee in this connection:

"Recent critical references to the National Drug Trade Conference in relation to its attention to the so-called 'restrictive sales controversy' indicate the appropriateness—and even the need—of a clarifying statement.

"Several years ago the Conference, through its Committee on Uniform Legislation, undertook the drafting of a Model Pharmacy Act. This was of the nature of work previously done by the Conference such as the Uniform State Food, Drug, and Cosmetic Act and the Uniform State Barbiturate Act. These drafts have been enacted, in substantial part, by the legislatures of numerous states.

"When the Committee working on the draft of a Uniform State Pharmacy Act came to write a provision dealing with the sale of proprietary medicines, it met the divergent views pertaining to this subject and was compelled to defer completion of its draft of a bill until it could compose the divergent views and formulate a provision acceptable to all members of the Conference.

"It is perhaps well known that the National Drug Trade Conference functions on a unanimous consent rule. There were at that time ten member associations of the National Drug Trade Conference. There are now nine due to the merger of the American Drug Manufacturers Association and the American Pharmaceutical Manufacturers' Association. The Committee on Uniform Legislation is composed of the same number of members as there are associations, each association having one member on the committee. Its subcommittee—for detail work—consists of three members, one from the AMERICAN PHARMACEUTICAL ASSOCIATION, one from the National Association of Retail Druggists, and one from The Proprietary Association.

"The subcommittee and the full committee have held many meetings during the last few years; have encouraged and engaged in full discussion; have sponsored through an independent research scholar a survey of all the pharmacy laws of all the States of the Union. This survey has been printed and widely distributed. The committee has sought views and suggestions and has striven—without success so far—to formulate means of resolving the controversy to the extent necessary to permit the drafting of a Model State Pharmacy Act.

"It is at this point that there seems to be special need for a clarifying statement. The National Drug Trade Conference, or its committee, has not undertaken to intercede in any specific controversy then, later, or now, existing in any specific state. The Conference, or its committee, has had no authorization to do that, is not set up for it, and does not invite it. Its authority and its purpose have been formulation of a provision for inclusion in a Model Uniform State Pharmacy Act and the making of such studies and conducting such research as may contribute to the accomplishment of that purpose. If, as a natural by-product of the work and accomplishment of the Conference, and its committee, there should ultimately come a resolution of specific restrictive sales controversies in specific states, that would be gratifying to the Conference, and it would be added stimulus and reward for its undertaking.

"The National Drug Trade Conference has instructed its committee to continue its work and the Conference solicits the good will and the assistance of all who endorse and support the drafting of a Model Uniform State Pharmacy Act. It hopes that if any are not able to assist in this work that they will, by this statement, understand and endorse the purpose and the undertaking of the Conference."

Status of the Proprietary Association

Article II of Chapter IV of the By-Laws of the AMERICAN PHARMACEUTICAL ASSOCIATION lists the names of the pharmaceutical organizations entitled to representation in the House of Delegates of the ASSOCIATION.

At the Los Angeles Convention of the APhA a resolution was adopted calling for the termination of representation of The Proprietary Association in the House of Delegates. Such termination requires an amendment to the By-Laws of the ASSOCIATION, and this matter is now in the hands of the Committee on Constitution and By-Laws. It cannot be acted on at the October 30 and 31 meeting of the House of Delegates, since

By-Laws of the ASSOCIATION can be amended only at a general session. A vote of three-fourths of the members present and voting is required for the adoption of an amendment.

The Proprietary Association was officially advised of the action taken at the Los Angeles Convention. The following communication has been received from that ASSOCIATION:

October 14, 1958.

Dr. Robert P. Fischelis, Secretary,
American Pharmaceutical Association,
2215 Constitution Avenue, N. W.,
Washington 7, D. C.

Dear Dr. Fischelis:

Your letter of August 9th officially notifying The Proprietary Association of the resolution adopted by the House of Delegates of the American Pharmaceutical Association at Los Angeles on April 25, 1958, was presented to a recent meeting of The Proprietary Association's Executive Committee.

The Committee deeply regrets the action represented by the resolution and hopes that it will not be consummated. Differences of opinion are no more uncommon in the field of drug manufacture and distribution than in any other field of activity. And they are seldom satisfactorily adjusted by the method embodied in the resolution.

A fair appraisal of the situation may be aided by a brief statement of The Proprietary Association's position which our Executive Committee has authorized and which I transmit to you enclosed, with the request that it be submitted for consideration to the Committee on Constitution and By Laws or to such other office within the American Pharmaceutical Association as may be appropriate.

Inasmuch as the resolution has been published, a better understanding of the matter would be promoted by publication of this statement.

With personal esteem and good wishes, I am

Sincerely,
Howard A. Prentice
Executive Vice President
The Proprietary Association

The statement of The Proprietary Association referred to in the letter quoted above is printed in full on page 664.

Members of the APhA who expect to attend the Cincinnati Convention next April should give special attention to this statement in determining how to cast their vote when the amendment to the By-Laws is presented.

Hugh Mercer Apothecary Shop

One of the historic shrines in Fredericksburg, Virginia, is the well-known Hugh Mercer Apothecary Shop. This shop has been in the custody of the AMERICAN PHARMACEUTICAL ASSOCIATION for more than fifteen years, and it is visited by a great many people from all over the United States each year.

The income from the customary fee charged for visits to this shrine is no longer sufficient to cover the expense of maintenance and employment of a curator.

It is very pleasing to note that the Women's Auxiliary of the AMERICAN PHARMACEUTICAL ASSOCIATION has become interested in this shrine and has made a contribution to its maintenance. Pharmacists throughout the United States should call attention of people with whom they come in contact and who are expected to travel in the neighborhood of this historic shrine, that it is a highly interesting place to visit. Fredericksburg, Virginia, is an unsually important historic city, and has many other attractions for those who are interested in historic places. The Hugh Mercer Apothecary Shop depicts a typical pharmacy of the revolutionary period and exhibits many interesting pieces of equipment and apparatus in use at that time.

The annual meeting of Friends of Historical Pharmacy, which is the Virginia corporation organized by the AMERICAN PHARMACEUTICAL ASSOCIATION to conduct the shop, was held recently and the following officers and board of governors were elected: President, Robert P. Fischelis; Vice President, William B. F. Cole; Secretary-Treasurer, George B. Griffenhagen. Additional members of the Board of Managers are: George F. Archambault, John Barrett, Mrs. A. G. DuMez, Felix B. Gorrell, and Warren Weaver.

Members of the AMERICAN PHARMACEUTICAL ASSOCIATION who have antiques of the period during which this pharmacy functioned may wish to exhibit these at the Shop, and the Secretary-Treasurer of the Friends of Historical Pharmacy, George Griffenhagen, who is Curator of the Division of Medical Sciences of the Smithsonian Institution and also consultant to the AMERICAN PHARMACUEITCAL ASSOCIATION Museum, will be glad to hear from those who have material to exhibit. It is not advisable to send anything to the Shop until after communication with Mr. Griffenhagen to establish the desirability and possibility of exhibiting the material involved, as space is naturally limited and material must be of a character that will fit into the collection now on exhibition at the Shop.

Alabama Association Lauds Mrs. Coburn

At the meeting of the Alabama Pharmaceutical Association held in Montgomery, Alabama, June 19, 1958, the following resolution was passed:

"WHERAS our Executive Secretary, Mrs. Thelma Morris Coburn, has served us well, with an unselfish and dedicated devotion, for a period of twenty years and

"WHEREAS, during this period of her service and direction of our affairs, our membership has increased from 43 members to approximately 800 members at the present time, thereby enabling us to increase our service to our membership a thousand fold,

"THEREFORE BE IT RESOLVED that the Alabama Pharmaceutical Association at its 77th Annual Convention assembled at Montgomery, Alabama, this the 19th day of June, 1958, go on record as expressing our deep appreciation to Mrs. Coburn for services rendered over and above her tour of duty and express the hope that she will be with us as Secretary for many more years to come."

To this resolution we wish to add our congratulations to Mrs. Coburn on services well performed. We have had opportunity from time to time to note the efficient manner in which the affairs of the Alabama Pharmaceutical Association are conducted and the gracious manner in which speakers at the annual conventions of the association are received and cared for during their stay in the convention city. We have also had opportunity to note the diligence with which the instructions of the Association are carried out by Mrs. Coburn and the alertness with which the current affairs of Pharmacy in Alabama are brought to the attention of state and national associations.

Association secretaries bear a heavy responsibility for the effectiveness of their organizations. Mrs. Coburn has been discharging these responsibilities for the pharmacists of Alabama with considerable success in the past two decades.

Statement of The Proprietary Association

to the American Pharmaceutical Association

On April 25, 1958 at Los Angeles, California, the House of Delegates of the American Pharmaceutical Association adopted the following resolution:

"WHEREAS, the Proprietary Association has demonstrated its refusal to conform with the aims and objects of the American Pharmaceutical Association, be it

"RESOLVED, that representation of the Proprietary Association in the American Pharmaceutical Association House of Delegates be terminated."

On April 26, 1958 at Los Angeles, the Council of the American Pharmaceutical Association instructed the Secretary of the Association to refer the resolution to the Committee on Constitution and By-Laws. The Council also instructed the Secretary to transmit a copy of the resolution to The Proprietary Association and to inform it that changes in the By-Laws may be proposed at one general session and acted upon at a subsequent general session of the American Pharmaceutical Association.

The Secretary has done that and has advised that the Committee on Constitution and By-Laws will be expected to present its report at the first general session likely to be held on April 21, 1959, and that any proposed changes would likely be voted on at the second general session on April 23.

The Proprietary Association makes the following response:

1. The action of the House of Delegates of the American Pharmaceutical Association, in adopting the above-stated resolution, is deeply regretted by the officers, the Executive Committee, and the members of The Proprietary Association.

2. The resolution does not state in what respects The Proprietary Association "has demonstrated its refusal to conform with the aims and objects of the American Pharmaceutical Association." It does not specify the "aims and objects" with which there has been "refusal to conform."

3. The stenographic report, which the Secretary has furnished, of the action taken by the House of Delegates does not give particulars but shows that the motivation for the resolution came out of differences of opinion which constitute the contemporary "restrictive sales" controversy.

4. The Proprietary Association and some state pharmaceutical associations have been, and are, participants in that controversy. The Proprietary Association regrets the controversy, as it would regret any dispute within the drug industry, and desires to aid in resolving it.

5. It is important—and earnestly desired—that The Proprietary Association's position be clearly understood. There has been apparent misunderstanding of it. It has frequently been described, and publicized, as an attempt to "break down the pharmacy laws," to repeal or otherwise relax legal requirements respecting the place of sale of drugs, and to open up generally the sale of drugs, and medicines. That has not been the purpose or the effort of The Proprietary Association at any time, and it is not now.

It is a fact—and has been for many years—that in every state of the Union, except one, there has existed a statutory exemption for the sale of proprietary medicines—sometimes referred to as "patent or proprietary medicines." These statutory exemptions go back through the years to 1870. They appear in the state pharmacy acts, and they exempt proprietary medicines—whether sold in pharmacies or in other retail outlets—from the provisions of the pharmacy acts which restrict drugs to sale by or under the personal supervision of registered pharmacists. Now the fact is—and the fact can be documented and demonstrated—that The Proprietary Association at no time has advocated anything more than the preservation of these existing statutory exemptions and their historic applications.

6. The Proprietary Association has many times stated, and now repeats, that over-the-counter, professionally promoted drugs and medicines—the so-called "ethicals"—are not included within the statutory exemptions for proprietary medicines and the Association has no desire for the exemptions to be so amended as to include them. On the contrary, it has advocated the exclusion of them from the exemptions.

7. The controversy which has been acute in some states in recent years has arisen out of the administrative interpretation of the exemptions in those states. Effort to resolve the controversy in those states has taken the form of proposed definitions of the term "proprietary medicines," the term not being defined in many of the state pharmacy acts.

8. The definitions advocated by The Proprietary Association have at all times conformed in substance—and even in language—with those stated by the Commission on Proprietary Medicines of the American Pharmaceutical Association as published in the *Journal of the American Pharmaceutical Association* for October 1915 (Vol. IV, No. 10, pp. 1152–1153):

" 'In its widest sense, a proprietary medicine is any drug, chemical or preparation, whether simple or compound, intended or recommended for the cure, treatment or prevention of disease, either of man or of lower animals, the exclusive right to the manufacture of which is assumed or claimed by some particular firm or individual, or which is protected against free competition as to name, character or product, composition or process of manufacture by secrecy, patent, copyright, trade-mark, or in any other manner.'

"*Proprietary Medicines Exploited in Accordance with the Requirements of Medical Ethics, or so-called 'Ethical Proprietaries':* Proprietary medicines, the active ingredients of which, with their proportions, are stated on the label or otherwise published, and which are not advertised to the general public, either through the public press, by accompanying circulars or in any other manner, and not accompanied by printed matter calculated to encourage their use by the laity without the advice of a physician.

" '*Proprietary Remedies Advertised Directly to The Public,' or so-called 'Patent Medicines':* Proprietary medicines, whether of secret or open formula, which are advertised directly to the general public through newspapers, by circulars or in any other manner, and the packages of which are accompanied by printed matter specifying the affections, symptoms, or purposes for which the remedies are recommended, and directions for their use."

9. The Proprietary Association has for many years required that the products of its member companies conform with standards the same as those set up in the declarations of the Commission on Proprietary Medicines entitled "Minimum Requirements with which Proprietary Remedies Should Comply in Order to Render Them Safe for Direct Sale to the General Public," which declarations were approved by the Council of the American Pharmaceutical Association on August 10, 1915 and published in the *Journal of the American Pharmaceutical Association* for October 1915 (Vol. IV, No. 10, pp. 1165–1166).

10. The Proprietary Association has endeavored—with State Boards of Pharmacy and Pharmaceutical Associations and with Committees of the National Drug Trade Conference—to restudy the definitions of proprietary medicines and to negotiate a solution to the controversy. In several of the states this has been accomplished. In some it has not, but the failure cannot be attributed to one side alone. Any solution must come through mutuality of purpose and effort. Such mutuality will not be created or the desire for it stimulated by terminating The Proprietary Association's representation in the American Pharmaceutical Association's House of Delegates. The desired end would be the more likely were its representation to be maintained and its participation encouraged.

11. The Proprietary Association does in fact conform with the objects and aims of the American Pharmaceutical Association. That is evidenced in numerous respects: membership in the American Pharmaceutical Association of individuals from The Proprietary Association member companies who are themselves pharmacists; national advertising of National Pharmacy Week by member companies; contributions by member companies to the building fund of the American Pharmaceutical Association; support of the American Foundation for Pharmaceutical Education; financial contributions to colleges of pharmacy; participation in the National Drug Trade Conference; support of fair trade by the Association and its member companies; support of Federal and State laws with respect to the composition and labeling of all drug products; the continuing elevation of standards for proprietary medicines; the continued and increased emphasis on scientific research and the financial support of the same.

12. This response has been made by order of the Executive Committee of The Proprietary Association.

Respectfully submitted,
THE PROPRIETARY ASSOCIATION
October 14, 1958 — Howard A. Prentice
Washington, D.C. — Executive Vice President

Final installment in a three-part series on

A rational basis for the preparation of

ophthalmic solutions

By | *Sidney Riegelman, Ph.D., and Daniel G. Vaughan, Jr., M.D.*

PART III

Organic Mercurials

Phenylmercuric nitrate in concentrations from 1:25,000 to 1:100,000 has been commonly used as an antibacterial agent for ophthalmic solutions. Mercurials in general are well known for their antibacterial properties but unfortunately are notoriously slow to act. Pseudomonal organisms survive exposure to a 1:25,000 concentration for longer than one week.

Phenylmercuric nitrate is precipitated by halide ions, further reducing its activity. Its principal usefulness has been as a substitute for benzalkonium chloride in pilocarpine nitrate and eserine salicylate solutions. It has also been incorporated in sodium fluorescein solutions, but since with this compound there may be cation-ion interaction, one may assume the combination to possess little antibacterial activity.

Thimerosal (Merthiolate®) has also been used in eye drops in concentrations of 1:5000 to 1:20,000 in nature, and for this reason is a useful addition to sulfonamides and other solutions containing large anions which normally inactivate many of the other antibacterial agents used as preservatives.

Phenols and Substituted Alcohols—The usefulness of several phenolic and substituted alcohols as ophthalmic preservatives has been studied. The following compounds have been reported to be (a) slowly bactericidal against Gram-positive and Gram-negative organisms, and (b) nonirritating upon instillation into an eye with an intact cornea: (1) *p*-chloro-metaxylenol, 0.03%; (2) phenyl ethyl alcohol, 0.5%; (3) *p*-chloro-metacresol, 0.05%; and (4) phenoxyethanol, 0.3%. These compounds are all stable at autoclaving temperatures. The first two are incompatible with benzalkonium chloride but have had wide acceptance as preservatives in England where they have been used to sterilize solutions at 100°C. They should be studied further.

Recommendations for the Preparation of Ophthalmic Solutions

The procedure recommended for the preparation of an ophthalmic solution depends upon whether it will be used in eyes traumatized or having intact corneas.

Solutions for Traumatized Eyes

1. With the exception noted below, all drugs used in injured eyes should be compounded with 2% boric acid solution. Sodium fluorescein and the sulfonamides should be compounded in distilled water. All solutions intended for use during surgery should be filtered free of lint or other particulate matter and should be prepared without the addition of a preservative, since all preservatives at bactericidal concentrations are irritating to the inner structure of the eye. Two-tenths per cent sodium bisulfite may be added to the boric acid solution of physostigmine, in order to minimize discoloration due to oxidation.
2. All such solutions should be put in small containers (5–10 ml. glass bottles with screw caps) for single-patient use only.
3. The closed bottle, plus a separate dropper, should be packaged in a container that can be autoclaved.
4. This unit should be autoclaved for 15 minutes at 15 pounds pressure. To prevent the cap from rupturing, the autoclave should be allowed to return slowly to atmospheric pressure before being opened.

Solutions for Eyes with Intact Corneas

1. Such solutions may be packaged in multiple-dose containers for general patient and office use.
2. Stock bottles of sterile distilled water, normal saline, 2% boric acid solution, and phosphate buffer at pH 6.8, to which preservatives have been added, should be available for the compounding of prescriptions to be used in the intact eye. Alkaline drugs should be compounded in the preserved water. Pilocarpine salts for home use should be compounded in the phosphate buffer. All other drugs should be compounded

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* Ophthalmic *ointments* should be prepared from petrolatum previously sterilized in one- or two-ounce containers in a hot air oven at 150° C. for from 2 to 3 hours. A new tube of ointment should be used for each patient whose eyes have been injured or surgically manipulated.

in normal saline, or preferably in 2% boric acid solution.

3. If the antibacterial agent selected for use as a preservative is sufficiently heat-stable, it should be added during the compounding of the stock vehicle.

4. All stock vehicles should be stored in sealed containers of moderate volume, such as 4- or 8-fl. oz. prescription bottles, depending on the rate at which they are to be used.

5. The sealed bottles of stock vehicles should be sterilized in an autoclave at 15 pounds pressure for 15 minutes and the autoclave be allowed to return slowly to atmospheric pressure before the bottles are removed. An alternative sterilizing procedure is to heat the preservative-containing stock solution to boiling for at least 30 minutes. The solutions should be agitated sufficiently to redisperse any coagulated methylcellulose which may have been added.

6. All intermediate containers, final containers, and closures should be treated by boiling, or sterilized with a suitable disinfectant, and then rinsed thoroughly with sterile or freshly-boiled water.

7. If extraneous suspended particles or excessive amounts of lint are introduced accidentally during compounding, the solution should be clarified with equipment that has been cleaned and sterilized as indicated above.

8. Bacterial filtration procedures may be employed, but precautions should be taken to prevent transfer of a therapeutically-active amount of previously-filtered drugs into subsequent ophthalmic solutions. A suitable antibacterial agent must still be added to the solution to eliminate, insofar as possible, the hazards of chance contamination during use.

9. Once the seal of the stock bottle has been broken, the vehicle should be discarded or resterilized after 24 hours. If a syphon bottle of large volume is used, extreme care should be taken to prevent its contamination, and the outlet tube, which may make contact with the final container, should be sterilized frequently and shielded from exposure when not in use.

SUMMARY AND CONCLUSIONS

1. The most important factors to consider when preparing an ophthalmic solution are tonicity, hydrogen ion concentration (pH), stability, viscosity, selection of a preservative, and sterility. By far the most important of these is sterility. The use of a contaminated solution on an injured eye (i.e., an eye traumatized by accident or at surgery) may result in serious infection and loss of the eye. An injured eye has even less resistance to infection than the bloodstream so that at least the same precautions should be taken in preparing ophthalmic solutions as in preparing solutions for intravenous use.

2. *Tonicity*—The isotonicity limits of an ophthalmic solution in sodium chloride equivalents may range from 0.7% to 2.0%. If the stock vehicle is an isotonic buffer solution, an 0.9% sodium chloride solution, or a 2% boric acid solution, no adjustment for tonicity is necessary unless the concentration of the active drug exceeds 5%.

3. *Hydrogen ion concentration (pH)*—Most ophthalmic drugs when compounded with distilled water or isotonic saline solution have negligible buffer capacity. When instilled into the eye, their pH shifts rapidly toward the pH of the tears so that they tend to be nonirritating even though their pH at the moment of instillation may have varied from 3.5 to 10.5. Solutions of pilocarpine salts and epinephrine bitartrate possess sufficient buffer capacity to cause pain due to their acid reaction.

4. The therapeutic activity of an ophthalmic drug depends on the amount of undissociated free base in solution, but alkaloidal drugs are active in solutions with a pH as low as 4.0 or 5.0 if they have a low buffer capacity. A pH in this range is desirable since it keeps the solution stable in the bottle. This can be accomplished by compounding the drug in a 2% boric acid solution (pH 4.7, modified by the drug to as low as 4.0). Once instilled in the eye, the pH shifts rapidly to the pH of tears with subsequent increase in physiological activity.

5. *Stability*—The rate of deterioration of a solution depends on the nature of the active drug, modified by the pH of the solution and by the temperature to which it is subjected. When formulated at pH 6.8, several ophthalmic drugs lose much of their therapeutic activity if sterilized by autoclaving. When prepared in 2% boric acid solution, however, all the common ophthalmic drugs can be autoclaved at 15 pounds pressure for 15 minutes without seriously affecting their therapeutic activity. (A special vehicle is presented below for physostigmine salts.)

6. Pilocarpine salts, because of their inherent acidity, should be dispensed in two different vehicles depending upon their use. Depending on the pilocarpine concentration, unbuffered solutions are irritating on instillation, and buffered solutions, though virtually painless, are relatively unstable. If heat sterilization is necessary, they must be left unbuffered or be dissolved in 2% boric acid solution. For home use they may be dispensed in a sterile phosphate buffer solution at pH 6.8, with the stipulation that a fresh bottle be procured at intervals of one month.

7. Physostigmine salts should be dispensed in isotonic sodium chloride solution to which has been added citric acid 12 mg. and sodium bisulfite 100 mg. per 100 ml. of vehicle. Such a solution is virtually unaffected by one autoclaving procedure and is nonirritating on instillation.

8. The alkaline drugs, such as the sulfonamides and sodium fluorescein, must be prepared in sterile distilled water.

9. *Viscosity*—Methylcellulose (0.25% to 1.0%, 4000 cps viscosity type) is occasionally added to ophthalmic solutions to increase their contact-time with the cornea. The desired quantity of a concentrated stock solution of methylcellulose (2–3%) that has been completely hydrated may be added to the usual stock vehicles which may then be autoclaved or heated to boiling. When the bottles have cooled sufficiently for handling, the coagulated gum must be redispersed throughout the solution by agitation.

10. *Sterility*—A solution used on an injured eye *must be sterile*. Sterile preparations in special containers for single-patient use should be available in every hospital, office, or other installation where accidentally or surgically traumatized eyes are treated. When intended for use in surgical procedures, eye preparations should not contain antibacterial agents since they are irritating to the tissues lining the anterior chamber.

11. Since sodium fluorescein solution is used routinely in the diagnosis of corneal injury, and is a maintenance medium for the deadly *Pseudomonas aeruginosa*, its absolute sterility at the time of use must be insured. Autoclaved preparations for single-patient use or sterile fluorescein-impregnated filter paper strips must be used.

12. Solutions to be used on eyes with intact corneal membranes may be packaged in multiple-dose containers. They should be compounded with a sterile vehicle containing a rapidly-effective, topically nonirritating antibacterial agent. Suitable preservatives for this purpose include benzalkonium chloride 1:10,000, chlorobutanol, 0.5%, phenylmercuric nitrate 1:25,000, *p*-chloro-metacresol 0.05%, and phenylethyl alcohol 0.5%. Each of these has certain limitations with respect to stability, chemical compatibility, or antibacterial activity. However, benzalkonium chloride 1:10,000 is the most reliable antibacterial agent of the group with a broad antimicrobial spectrum and may be recommended for all preparations in which it is compatible. Chemical incompatibilities can sometimes be avoided by selection of an alternative salt whose anion does not react with the benzalkonium ion. ■

The FDA looks at pharmacy's

animal health departments

by John H. Collins, D.V.M.

THE FOOD AND DRUG ADMINISTRATION is not a police organization in the usual sense, and it does not have direct police powers. It does not make arrests. It is an agency devoted to scientific investigations. The fact should not be minimized, however, that those investigations are aimed at law enforcement and when investigations show that there has been a violation of the law, the facts are reported to the United States attorney so that the cases can be prosecuted in the Federal courts. Nevertheless, any arrests or service of papers that become necessary are done by United States marshals and not by FDA personnel.

To get a clear idea of the way the FDA operates, it is important for pharmacists to understand that, with a few exceptions, effective regulation of drug supply depends upon factory inspection, sampling, and laboratory examination, rather than upon any kind of predistribution controls. Instead of providing for registration or licensing of products, the law sets up certain requirements for drug products, and makes the distributor of drugs responsible for compliance with those requirements.

From the number of inquiries received from pharmaceutical associations and retail druggists, the FDA sometimes wonders if only a few pharmacists are cognizant of their legal responsibilities as retail distributors of drugs for animal use.

The most frequently-asked question is that of the propriety of selling for veterinary use drugs that are labeled by the manufacturer for human use. Most pharmacists know that the FDA does not object to the filling of a veterinarian's prescription from a bottle which bears labeling for human use and which may even bear the human use prescription legend set forth in the so-called Durham-Humphrey Amendment (Section 503(b) of the Federal Food, Drug, and Cosmetic Act). On the other hand, a pharmacist can not legally sell over the counter a legend drug by simply writing across the container label the statement "For Veterinary Use Only".

The labeling of an article sold over the counter should be completely informative as to composition, adequate directions for use, and warnings against misuse. In many instances a pharmacist may be prone to take too lightly his obligation to label properly a product he sells for veterinary use, even when he can legally take a product originally labeled for human use and relabel it for over-the-counter veterinary use. Some human prescription items are also restricted to prescription sale in the veterinary field. To be entirely safe, a pharmacist is much better advised, if he wishes to deal in products for veterinary use, to buy those products which are already labeled for such use. Not only does this eliminate the problem of deciding which human prescription products can legally be sold without the prescription of a veterinarian, but it also eliminates the problem of trying to devise appropriate directions and warnings for the animal use label. Unless he has special knowledge of veterinary medicine, a pharmacist is likely to have difficulty in devising appropriate labeling.

A problem sometimes, but fortunately not often, encountered involves the illegal sale of a drug, which may be sold only on prescription for human use, on the pretense that the customer is going to use it for a veterinary purpose only. To illustrate this point, one pharmacist told an FDA inspector, who had just asked to purchase some sulfonamide tablets, "I can't sell you this drug for yourself but I can sell you some tablets for your dog." He then proceeded to put some sulfonamide tablets in a dispensing container and handed it to the inspector with the statement, "We'll just say this is for your dog, won't we?" Practices of this nature are obviously in violation of the law.

Another thorny problem encountered more frequently concerns animal medications that are labeled with a statement which says in effect "Sold to Veterinarians Only". Some manufacturers who use this statement do not in fact adhere strictly to the sales policy it proclaims, and products so labeled sometimes appear in pharmacies, feed stores, and elsewhere. The problem is that quite commonly products labeled in this manner do not bear the detailed information that a farmer or a pet owner needs to use the articles safely and intelligently. Under the exempting regulation of section 502(f) (1) of the Federal Food, Drug, and Cosmetic Act, a product sold directly to a veterinarian does not need to have the detailed indications and directions needed by the farmer or the pet owner; such a product may be labeled only with the information needed by the doctor in his practice of veterinary medicine. Pharmacists should watch for products in this category, not only in their own pharmacies but in feed stores and other inappropriate sales outlets, and

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should report the facts in such cases to the Food and Drug Administration in Washington or to the nearest FDA District Office. However, they would probably be more inclined to inform the manufacturer of the article that his product is being distributed in a manner not intended by him and consequently is probably misbranded and violative of that section of the Act which requires adequate directions for use.

The FDA has no authority to interfere with, control, or regulate the legal practice of medicine, either human or veterinary. However, a sore point basically responsible for creating discord between Pharmacy and the Veterinary Medical profession should be discussed. A pharmacist's legal right to dispense and merchandise drugs for animal use as well as human use should be beyond challenge. However, in their zeal to stimulate sales promotion in animal health departments, many pharmaceutical trade journals encourage pharmacists to engage in activities which on the surface seem dangerously close to practicing Veterinary Medicine without a license. Whether such advice is heeded in its entirety is, of course, up to the pharmacist. Illustrative of the subject are a few quotations from some journals published for the profession of Pharmacy:

"Keep well informed on up-to-date practices in animal medication and treatment, so that you can provide expert guidance to the farmer."

"Maintain a library of animal health literature which you and the farmer can consult."

"Distribute animal health literature and promotional material as package inserts in all departments and in your monthly statements."

"The store also maintains a complete library of animal health literature, so that knotty questions can be answered on the spot. Mr. ————'s expert knowledge of animal health practices and his personal interest in the problems of the farmer are another big factor contributing to the high rate of sales. He talks things over with the farmer and helps him decide what treatment is needed."

"Pharmacists, by and large, have not sensed the need for expert guidance in the selection and use of drugs for the treatment of pets or other animals. The terminology and etiology of animal diseases are a strange jargon of lay terms and scientific language, even as used by many veterinarians, and an understanding of human diseases does not help much in deciphering. On the other hand the therapeutic approaches used are almost identical: vaccines, sulfonamides, antibiotics, anthelmintics, etc. It does not take long for the intelligent and interested pharmacist to acquire some familiarity with veterinary remedies and the diseases for which they are used. This knowledge often pays great dividends and opens up an area of sales of no small volume."

"The ———— Drug Store, ————, Tenn., sponsors animal health classes for local farmers as part of its promotion of animal and poultry health products sold in the store."

"Mr. ———— gives personal service to each customer. He maintains a library of animal health literature to help him in discussing animal diseases and their cures."

These few quotations should be sufficient. No one questions the legal right of an animal owner to attempt his own diagnosis or the right of a pharmacist to sell that person any drug he asks for provided it is properly labeled and is not one restricted by Federal law to prescription sale. However, if the pharmacist makes the diagnosis or aids materially in reaching a diagnosis, it may be a horse of a different paint job under various State statutes regulating the practice of Veterinary Medicine. Moreover, the pharmacist should realize that when he does so he is engaging in a rather risky affair and may be rendering his customer and perhaps the whole community a disservice. An erroneous diagnosis may result in not only the loss of one animal's life but countless animal and perhaps human lives. Many diseases of animals are highly contagious and many are directly transmissible to man. According to law, most of these diseases must be reported immediately upon diagnosis to State and Federal officials. The pharmacist's part of the patient-doctor-pharmacist relationship with the veterinary physician should be essentially the same as that which he maintains with his colleagues in the human field.

The following statement is quoted out of context to illustrate the evils inherent in quoting out of context and also the possibility of making a false statement by putting it into print without checking its truth or falsity with proper sources of information. This quotation is taken from the April, 1957 issue of a publication printed for the continuing education of pharmacists:

"Many druggists are deterred from entering this field (animal health products) because of competition from dispensing veterinarians, and formerly this was something to be reckoned with. However, developments during the last several years have generated a trend towards the drug store as the dispenser of pet care items. One factor influential in this trend is the constant introduction of new medications with higher unit costs. This has induced veterinarians to write prescriptions and let the druggists do the dispensing and thus carry the burden of investment in medical stock. Fortunately, for the druggists, this does not require any appreciable expansion in inventory, since much animal medication is also prescribed for human beings, varying only in animal dosage. A further advantage for the druggist was provided in the enactment of the Durham-Humphrey Amendment to the Food and Drug Act, which released many legend drugs for over-the-counter sale as animal medications. In the opinion of Dr. Collins, head of the Veterinary Section of FDA, druggists may sell these medications without prescriptions when the customer indicates that they are intended for treatment of animals.

" 'Every owner of animals,' the doctor stated, 'has the inalienable right to attempt to make his own diagnosis and attempt treatment of his own animals, which are admittedly his own property. He has the right to demand and receive safe and efficacious drugs with which to attempt that treatment.'

"Such drugs include the tranquilizers—Paxital, Sparine, Equanil, and Miltown—which are recommended for controlling vicious or frightened dogs and cats—fear of thunder and lightning, tendency to tear off bandages and rip out surgical stitches."

The above statement, taken out of context from an article published in the January 1953 issue of the *Journal of the American Veterinary Medical Association*, together with the ill-considered remarks of interpretation by the author of this "educational" article have placed the author in the embarrassing and defensive position of answering some pointed questions posed by not a few mildly-outraged colleagues. The real damage, however, lies in the false statement with respect to the tranquilizers. Although the quoted statement appeared in print April 1957, the FDA issued the following press release to veterinary and pharmaceutical journals on October 29, 1956:

"In order to prevent possible diversion to human use of tranquilizing drugs intended for administration to animals, the Food and Drug Administration said today that these new veterinary products will be restricted to professional use.

New-drug applications for veterinary tranquilizers specify that labels will bear the warning: 'CAUTION: Federal law restricts this drug to sale by or on the order of a licensed veterinarian.'

It was pointed out that present medical knowledge of the tranquilizers requires that use for humans be under medical supervision."

The thinking of the FDA in this connection is predicated upon tranquilizers in dosage forms which lend themselves to use in human medication, i.e., those which may be diverted to ill-advised or illegal use for or by humans. Recent developments in this field indicate that the FDA's announced position may necessarily have to be modified if the dosage form is unsuited to human use, as for example incorporation in a high-protein pre-mix intended for mixing with animal feeds. In such an instance, however, the preparation would be regarded as a new drug under statutory definition which would necessitate the filing of a new drug application by the manufacturer. Among other things, the application would have to prove the absence of drug residues in tissues from slaughtered animals used for human consumption in addition to *per se* safety for the animals intended to receive the drug directly. ■

The pharmacist must have a sensitive feeling for morality and

business ethics

*by John A. Biles, Ph.D.**

WHAT should be the responsibility of the pharmacist tomorrow? Does the pharmacist have any goals? One of the important considerations in answering these questions is the sensitive feeling for morality. In fact it has been stated that in the proper consideration of any problem, the first question that must be answered is whether or not the choice is morally right. Yet what may be truth to one individual may not necessarily be truth to another individual.[1] This leads to the story of an English lady, self-appointed supervisor of village morals, who accused a workman of having taken a drink because with her own eyes she had seen his wheelbarrow outside a public house. The accused made no defense, but that evening placed his wheelbarrow outside her door and left it there all night.[2]

Emotional Maturity

For proper implementation of ethical standards, it is desirable that the prudent pharmacist possess an emotional maturity. Strecker's interpretation of emotional maturity is applicable to this discussion. Maturity represents:

". . . the ability to stick to a job, to work on it, and to struggle through it until it is finished, or until one has given all one has in the endeavour. It is the quality or capacity of giving more than is asked or required in a given situation." We call this reliability. "Persistence is an aspect of maturity; persistence to carry out a goal in the face of difficulties. Endurance enters into the concept of maturity; the endurance of difficulties, unpleasantness, discomfort, frustration, hardship. . . . Maturity includes a determination, a will to succeed and achieve, a will to life. Of course, maturity represents the capacity to cooperate; to work with others, to work in an organization and under authority. . . . he can show tolerance; he can be patient and above all, he has the qualities of adaptability and compromise. Basically, maturity represents a wholesome amalgamation of two things: (1) Dissatisfaction with the *status quo*, which calls forth aggressive, constructive effort, and (2) social concern and devotion. Emotional maturity is the morale of the individual."[3]

Ethical Problems

W. M. Urban has stated that it is possible for a man to be very keen in business, or his technical field, but be very stupid about the values of life.[4] Ethics is concerned with these values. Before considering ethics, let us play a game. What are your answers to these problems?

No. 1—"A baseball player, who is a center-fielder, stopped a fly ball just on the surface of the ground. He had really not caught the ball. However, no one except himself knew whether he had caught the ball in his hands or stopped it as it hit the ground. The umpire called the batter out and the batter's team lost the game, which was a critical game in the contest for the pennant. Shall the center-fielder let it be known that the ball was not caught? Shall he accept the umpire's decision, whether it is favorable or unfavorable to his team and remain silent?"[5]

No. 2—Let us assume that a physician had an office in one of the medical buildings in the downtown area of a large city. During the noon hour this physician left his office to eat lunch. While waiting to cross the street, he was a witness to an accident; a car hit a pedestrian. The physician's first impulse was to run to the side of the pedestrian, but he hesitated because he would take the case without the patient's request. If the prognosis were adverse, the patient could sue the physician. So the physician remained an innocent bystander. Do you care to pass judgement on this case?

No. 3—You, a pharmacy owner, have an aggressive pharmacy competitor across the street. You might say that the competitor acted as though "there was no love lost." One busy afternoon your telephone rang. The competitor called and in a nice manner requested the copy of a prescription and the prescription price. What would you do?

Moral Conduct

These are the type of problems that are inescapable in the practice of Pharmacy. There is the necessity of moral judgment. People in the Pharmacy profession recognize that some practices are approved of and some practices are not approved of. The practices which are approved of are those which are believed to be desirable; these are called right. The practices which are not approved are believed to be undesirable and are called wrong.

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* Presented at the American College of Pharmacists meeting in Los Angeles, California, February, 1958.

[1] Jack, H. A., "The Wit and Wisdom of Gandhi," The Beacon Press, Boston, 1951, p. 71.

[2] Anonymous.

[3] Strecker, E. A., "Basic Psychiatry," Random House, New York, 1952, pp. 363–364.

[4] Urban, W. M., "Fundamentals of Ethics," Henry Holt and Company, New York, 1930, p. 4.

[5] Titus, H. H., "Ethics for Today," American Book Company, Boston, 1936, p. 2.

The problem of conduct is recognized as morality. The word moral comes from the Latin word *mos* which means custom or way of life. The related term, ethics, is derived from the Greek word *ethos* which also means custom or character. Both terms refer to behavior which tends to become customary because of the approval of the practices of the group. Therefore, the terms may become synonymous. But Titus states that "morals and morality ordinarily refer to the conduct itself, while ethics and ethical ordinarily suggest the study of moral conduct or the system or the code which is followed. For example, we usually speak of an ethical system or code and a moral act or a moral man."[6] So ethics attempts to determine what conduct is good and what is bad, or what ought to be approved and what disapproved. Since ethics is a normative study of the principles underlying the desirable types of human conduct, it is classified as a practical science. Knowledge is acquired with the study of any practical science. Furthermore, as pointed out by Bourke, ethics is not the same as prudence. "Prudence culminates in right action, in doing things reasonably."[7] Therefore, if the pharmacist "applies his ethical knowledge to his own life problems, he is more than a skilled ethician; he is a prudent man."

Ethical Relativity

This application of ethical knowledge is controversial because of the differences of opinions in what is ethical. Fitch has adequately expressed his interpretations on these differences of beliefs.[8] He stated that we are a nation of ethical relativists for a number of different reasons.

First, Americans do not believe there is any absolute and universal standard of right and of wrong that is applicable to all peoples at all times and in all places. Consequently right and wrong are simply matters of custom which vary with time and with place. Fitch pointed out that this country was born in the rejection of theocracy and monarchy. The United States fought to reject facism. Now we are engaged in the rejection of communism. If this is acceptable, then the conclusion is valid that all absolutes are fundamentally unworkable. This rejection of absolutism has led to a "free-for-all in morals."

A second difficulty in the interpretation of morals is the varied beliefs of the different cults. The intermingling of the different cults or the so-called melting pot has resulted in greater problems of interpretation of ethics.

A third and important reason for the difficulties in the proper acceptance of ideas of morality is that in our pursuit of material satisfaction, there has developed a strain of influence which favors expediency rather than principle, and which encourages us to be smart, clever, and successful, rather than honest, intelligent, and socially useful. You know—A man has to look out for himself!—A man has to get ahead in the world! This character has stepped out of the moral and religious framework which used to give his life significance.[9] Therefore, one should question whether or not the peoples of America should have had a free enterprise in the realm of morals.

Before the introduction of tranquilizers, it was stated that half of the hospital beds in the United States were occupied by mentally ill patients. Dr. Schindler has discussed in detail emotionally induced illness.[9] Titus has stated that a considerable part of this personal perplexity has resulted because people do not understand the nature of morality and its relation to life.[10] Finally, it is noteworthy that in psychoanalysis every neurosis is in and by itself considered as failure at moral control.[11]

Signs of Moral Breakdown

The approaching breakdown of the morals is signalized by the loss of faith. The first sign of this breakdown in behavior is a quality of wavering uncertainty. One ceases to act with courage and decisiveness because he can no longer act with conviction. Then he is ready to be diverted or reversed by the first great force that operates in another direction.[12] Fortunately the important historical contribution of traditional systems of ethics is the attempt to strengthen consciousness and conscience against the invasion of the instincts. Psychoanalysts have become aware that this strengthening can be achieved only by facing and working through, rather than by merely condemning the forces threatening our conscious, personal, and social values.[11]

In the search "for professional advancement of the Pharmacy of tomorrow," it is the author's opinion that his ears seemed to hear most of the time only the financial aspects of the problem. Bellafiore has commented on the pharmacist as a therapeutic consultant. He states that "the benefits to the pharmacist from his consultation are expected to follow in the form of increased prescription business. It is debatable whether this return will be adequate for the pharmacist's trouble."[13] Pharmacists in different localities have complained that their profession was being legislated out of business by grocery lobbies. In the discussion of the steps which they desired to take to counteract this movement, money was the primary topic. The pharmacist complains about the discounted prescription. That is unethical! Many of the pharmacists denounce the competitor who gives out green stamps, yet his household is influenced to buy at places where green stamps are given (of course, they are free!). Many pharmacists have furnished prescription blanks for several years, but California pharmacists now find this practice to be unethical. Must the pharmacists on facing an interrogating committee state whether or not that Christmas gift to the physician was meant to be a kindly or an influencing gesture? The pharmacist sells a TV set to the physician at cost, but the physician complains about the price of prescriptions. Yet the physician invests his money in pharmaceutical stocks. The pharmacist guards his financial investments also. Every pharmacist probably knows of the competitor who drives a hard bargain. He gets all he can for a given item, but he purchases every item at the lowest cost. The clarification of this confusion will come when the pharmacist realizes that "the frontiers of our civilization are moral and spiritual rather than physical."[14]

Business and Social Ethics

It is only logical that one places a charge on his product and services so that he will make a satisfactory return on his investment. This is an honest and intelligent approach. This is accepted by the majority. If one finds a more efficient way to run his business, makes a satisfactory return, and allows a savings to his customer, it will not be wrong as judged by the majority. Is this a discount? What the pharmacist must strive for is consistency and fair play. For example—if you purchase your delivery trucks at a discount, then do not complain about discount houses affecting your business. What is the difference in purchasing meat at the grocery store on sale and your discounting over-the-counter items in the pharmacy? This author has not been convinced that the consumer differentiates between utility items purchased at discount prices and close-out sales of items in the pharmacy. Furthermore, ethics should not be measured by materialistic gains or losses. Ethics is measured by the respect of the trust shown by the pharmacist in the handling of dangerous drugs. The manner in which the pharmacist respects society is a matter of ethics. The pharmacist's concern to accept his responsibilities in life and the level of this concern is a matter of ethics.

A few words about codes of ethics is warranted. The author tends to believe that the pharmacist's convictions about morality are shallow if he requires a list of do's and don't's to practice his profession. A man must know why he believes what he believes or does what he does. When the pharmacist follows his beliefs humbly and with a real conviction, there results a development of his own inner personality. This results in a release of creative power. This is a dynamic and satisfying experience. In the daily interaction with people, honesty, justice, love, truth, and freedom should prevail. This

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[6] Titus, H. H., *Ibid.*, p. 4.
[7] Bourke, V. J., "Ethics," The Macmillan Company, New York, 1951, p. 7.
[8] Fitch, R. E., "Preface to Ethical Living," Association Press, New York, 1947, pp. 17–19.
[9] Schindler, J. A., "How to Live 365 Days a Year," Prentice-Hall, Inc., New York, 1954, pp. 1–213.
[10] Titus, H. H., "What Is a Mature Morality?," The Macmillan Company, New York, 1943, p. 9.
[11] Klein, D. B., "Mental Hygiene," Henry Holt and Company, New York, 1955, p. 530.
[12] Fitch, R. E., *loc. cit.*, p. 20.
[13] Bellafiore, I. J., "Therapeutic Consultant," THIS JOURNAL, **19**, 90 (1958).
[14] Titus, H. H., "What Is a Mature Morality?," The Macmillan Company, New York, 1943, p. 1.

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should be the backbone of any code of ethics. Therefore, there should be no differentiation between business and social ethics. To this extent, a separate code of ethics need not be written for the professions of Pharmacy, Medicine, Law, Accounting, etc. Albert Schweitzer said this about the ethical problem: "The mere setting up of lists of virtues and vices is like vamping on the keyboard and calling the ensuing noise music."[15]

Concern for Human Welfare

Now that time has been taken to discuss ethics, let us play our game again. One morning some time ago, Richard Evans asked this of his audience, and I repeat to some extent his questions to you—Would you like to meet yourself when you are in trouble? Would you serve a man without influence as fairly as you would a man with influence? Would you pay a person as fair a price for something he was forced to sell as for something he did not have to sell? Would you honor an unwritten agreement as honestly as if it were written? Would you stay with your principles no matter what price you were proffered for forsaking them? If your partner lost his health, would you still deal with him not only justly but also generously? Would you like to work for yourself?[16] Evans recalled Shakespeare's statement—"Go to your bosom; knock there, and ask your heart what it doth know."

How self-actualized is a man when all he can weigh is the material gains? Pharmacists want to be recognized as professional people. Some states have legalized Pharmacy as a profession. One of the primary acts that identifies a professional man in the health profession is his *primary* concern for the welfare of the human being. The material gain is *secondary*. If we really desire to be professional people, then the enactment of laws to control the profession of Pharmacy will decrease. This author recognizes that this society would be difficult to live with, if it were a lawless society. However, many of the regulations set down by the State and Federal Governments have been enacted in order to control undesirable behaviors.

The awareness of morality can be made more sensitive to the individual through the educative process. It is the author's belief that this is the defense for the extended pharmacy curriculum. This is the best justification for two years of prepharmacy and elective courses in the pharmacy curriculum. It should be the faculty's responsibility to see that the student takes courses in sociology, psychology, and philosophy rather than basket-weaving. Finally, the pharmacist as an ethical preceptor will help immeasurably in the choice of the future members of our profession. ■

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[15] Joy, C. R., "Albert Schweitzer, An Anthology," The Beacon Press, Boston, 1947, p. 236.
[16] Evans, R. L., "Tonic for Our Times," Harper and Brothers, Publishers, New York, 1952, pp. 19–20.

Current Comment

Continued from page 658

On this anniversary let us present a tribute of admiration to the genius of this forgotten French scientist, who alone in an obscure laboratory anticipated the Antibiotic Age."

Sir. Howard W. Florey, now a member of the faculty of the University of Oxford, England, with his delightful sense of humor and with becoming humbleness reviewed the early British studies on penicillin and its isolation. As co-discoverer with E. B. Chain of the chemotherapeutic properties of penicillin, Florey was responsible for interesting the United States in its development during World War II. He credited the U.S. with 3 fundamental steps in bringing penicillin into wide medical use: (1) the development of the deep fermentation process; (2) the production of strains of fungus yielding far more penicillin than Fleming's original strains; and (3) improvement in the fermentation media, especially by the addition of corn-steep liquor.

Dr. Selman A. Waksman, Institute of Microbiology, Rutgers, The State University, New Brunswick, N.J., described the evolution of antibiotics from soil and pointed out:

"Little is known of the mode of action of the antibiotic, that is, how it acts upon different bacteria. Just what connection is there between the nature of the organism and its sensitivity to a particular antibiotic?"

Dr. Chester S. Keifer of the Boston University School of Medicine stressed the need for more thorough investigations of the heart in attempts to determine the mechanism of antibiotic action. Dr. Harry F. Dowling of the University of Illinois College of Medicine predicted that: "The future of antibiotics will be written by those researchers who search out new paths rather than follow those cut out by previous investigators."

Human Worm Infections

Dr. Norman R. Stoll of the Rockefeller Institute for Medical Research estimated about a decade ago that the world total of human worm infections is about 2,257,000,000. Of these, 1,243,-200,000 infections are caused by four parasites: Whipworm (*Trichuris trichiura*), intestinal threadworm (*Strongyloides stercoralis*), large roundworm (*Ascaris lumbricoides*), and pinworm (*Enterobius vermicularis*). The whipworm alone causes almost a sixth of the total world infections.

These hundreds of millions of human beings who are being debilitated by intestinal worm parasites may now be cured, according to word from Eli Lilly & Co., by a new drug dithiazanine iodide (Delvex, Lilly), the first broad spectrum anthelmintic for human use orally. This drug is claimed to be the first practical effective agent for use against the whipworm and the threadworm. It is also at least partly effective against the dwarf tapeworm (*Hymenolepis nana*) and the beef tapeworm (*Taenia Saginata*).

Dramatic recoveries of patients have been cited. In San José, Costa Rica a six-year-old boy's life was saved when crushed tablets were administered by stomach tube. Although he was terribly emaciated, severely dehydrated, unconscious, and not expected to live, he passed 3,162 adult whipworms and was released from the hospital within a short time.

Stress Engenders Heart Disease

An interesting report presented by Drs. Meyer Friedman and Ray H. Rosenman on October 26th at the American Heart Association Convention in San Francisco indicates that the intense, competitive, hard-driving business man is more prone to heart disease than the easy-going man who doesn't care about success.

The behavior pattern of the "hard drivers" they studied was characterized by (1) intensive drive, (2) profound inclination to compete, (3) persistent desire for recognition and advancement, (4) continuous involvement in multiple and diverse functions constantly subject to time restrictions, i.e. deadlines, (5) habitual compulsion to accelerate the rate of execution of all physical and mental functions, and (6) superior mental and physical alertness.

The investigators found that these hard-driving men had higher blood levels of cholesterol which is associated with hardening of the arteries, a faster blood-clotting time, and 6 to 8 times as much clinical heart disease as men with the opposite kind of personality pattern.

Another study reported by Dr. Dale Groom of the Medical College of South Carolina shows that "The American Way of Life" makes people in this country more susceptible than other populations to coronary artery disease, the leading cause of death in the United States.

A team of scientific investigators in South Carolina and another one in Haiti compared levels of artery hardening (atherosclerosis) among the Negro populations of the two areas. Both of these groups were of the same racial origin but lived in vastly different environments. The investigators found that atherosclerosis was twice as prevalent in the coronary arteries of the South Carolina subjects, but the guilty factor causing this greater incidence did not appear to be differences in diet, because the amount of atherosclerosis in the aorta was approximately the same in both groups.

Aerosols *and the pharmacist*

*by John J. Sciarra, Ph.D.**

For many years the retail pharmacy has been one of the major outlets for aerosol products. Such products as insecticides, hair lacquers, room deodorants, shave creams, perfumes, colognes, burn preparations, local anesthetics, etc., and more recently dental creams, men's hair preparations, and several medicinals have been available in aerosol form. This newer method of dispensing products has many advantages over the conventional method for dispensing preparations and, in some instances, has made possible products that could not be dispensed efficiently by any other method—for example, hair lacquer.

As many of these products are sold in the retail pharmacy, the pharmacist should have a knowledge of the principles of operation, component parts, and the formulation of these products. This information will enable the pharmacist to answer intelligently some of the questions the public might propose to him as well as to inform the public as to the many advantages of products in aerosol form. Therefore, it is the purpose of this paper to present some of the basic information concerned with aerosol products.

The term "aerosol" is used to define a system consisting of a supension of fine solid or liquid particles in air or gas. This definition has been modified so that today, the term "aerosol" refers to all those products which depend upon the power of a compressed or a liquefied gas to expel the contents from the container. In this paper the term "aerosol" is used to refer to the above type of product.

Aerosols first appeared in the United States about 1943 when the familiar aerosol insecticides of World War II were developed by L. D. Goodhue and W. N. Sullivan. These insecticides produced a fine spray and the particles of insecticide remained suspended in air for a relatively long period of time making them extremely effective against insects and household pests. The propellant used in these insecticides was dichlorodifluoromethane since it was found to give satisfactory solubility results when mixed with petroleum distillates and insecticidal chemicals. Its vapor pressure of 70 pounds per square inch gauge (psig) produced an aerosol having the required particle size. Unfortunately, this meant that the container had to be constructed in such a manner so that it would be capable of withstanding this pressure. The container was heavy and expensive which limited the sale of these products. Following World War II, newer propellants, valves, and containers were developed so that the proper particle size and spray could be produced utilizing a pressure of 35–40 psig. This lower pressure made possible the use of a "beer type" container which considerably lowered the price of aerosols. The development of the low and ultralow pressure (15–25 psig) aerosols made possible the use of glass and plastic-coated glass containers. More recently stainless steel containers have been developed. These containers are especially suited for use with medicinal products.

Liquefied Gas Aerosols

These aerosols comprise two basic types: the 2-phase and the 3-phase system. The 2-phase system aerosols consist of space sprays, surface sprays, and foam sprays. The active ingredients are dissolved, suspended, or emulsified in the propellant and form a liquid phase (active ingredient and propellant) and a vapor phase (vaporized propellant). In the 3-phase or 2-layer system, the active ingredients are dissolved in water or an aqueous base, and as water and propellant are immiscible two layers are formed. The propellant being of greater density goes to the bottom and makes up one phase. The aqueous layer floats on the propellant and makes up the second phase, and finally, some of the propellant vaporizes and fills the head space to make up the third phase.

When an aerosol preparation stands at room temperature in a closed container, some of the molecules of propellant will change from a liquid to a gas and fill the empty space in the container. An equilibrium is soon reached between the number of molecules going from a liquid to a vapor and from a vapor to a liquid. This equilibrium is established when the pressure within the container becomes equal to the vapor pressure of the propellant. This pressure is exerted equally in all directions and when the valve of the container is opened, the pressure forces some of the liquid up the dip tube and through the valve. When the liquid material comes in contact with the warm air and atmospheric pressure the propellant portion instantly changes to a gas and in so doing dispenses the active ingredients as a fine spray. The volume of head space within the container is increased due to a discharge of some of the material. This causes a temporary drop in pressure due to expansion of the gas in the vapor phase. But the original pressure is quickly restored since some of the liquid propellant changes to the vapor phase to restore the equilibrium and original pressure. (This is a significant difference from the compressed gas aerosol which will be discussed later.) Figure 1 shows a typical space or surface aerosol.

Space sprays and surface sprays operate on the above principle. The chief difference between the two types of sprays is the pressure within the container; the space spray being 30–40 psig and forming a fine mist whose particles remain suspended in air for at least 40–60 minutes, and the surface spray whose pressure is slightly lower and is used to coat a surface with active ingredients rather than suspend them in air. Space insecticides and room deodorants are examples of space sprays while residual insecticides, mothproofers, paints, and paint remover make up some of the surface sprays.

Foam aerosols operate on essentially the same principle except that the propellant is partially emulsified with the

* The author wishes to express his gratitude to Dr. Francis A. Mina, Technical Director, Lodes Aerosol Consultants, Inc., New York, for his many helpful suggestions and guidance during the writing of this manuscript.

Investigations in aerosol therapy are being carried out at St. John's University College of Pharmacy. The effect of drugs when given in aerosol form, as well as basic research in such phases as solubility, stability, and formulation, are currently being investigated.

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active ingredients. When the valve is depressed the emulsion is forced through the nozzle and in the presence of warm air and atmospheric pressure the entrapped propellant changes to a gas and whips the emulsion into a foam. Foam products operate at about 35–70 psig at 70°F. and contain about 6–10% propellant as compared to about 80–90% propellant for the space and surface spray. Figure 2 shows a typical foam type aerosol. When the container is supplied with a dip tube (as shown in Figure 2) then the container is held upright during use. Some products do not contain a dip tube, and therefore the directions specify that the container is to be inverted prior to use. It is important that the directions be followed; otherwise the propellant may escape without dispensing the active ingredients. Another important consideration is that these products must be shaken before use. As these are emulsion type products, there is a certain amount of separation of active ingredients and propellant so that shaking produces a homogeneous mixture. This is another significant difference from most of the compressed gas aerosols which specify that the container is not to be shaken and is to be held upright during use. Shave creams and shampoos are examples of foam type aerosols.

As the contents of the 3-phase aerosol are used, the propellant boils due to the decrease in pressure and the gas passes through the aqueous solution and restores the pressure in the head space. Only a small quantity of propellant is used to make up this type of aerosol and as the dip tube does not extend into the propellant layer, essentially only aqueous solution is dispensed. The absence of propellant from the liquid necessitates the use of a specially-designed nozzle to produce the proper spray. Figure 3 shows such an aerosol. Several products utilize a hydrocarbon, such as isobutane, as the propellent. This is essentially the same as above except that the hydrocarbon is lighter than water and floats on top of the aqueous layer. Several household cleaners and moth-proofers are examples of 3-phase aerosols.

The liquefied gases used as propellants are essentially chlorinated, fluorinated hydrocarbons of the methane and ethane series and more recently the butane series. These compounds have been used for many years as refrigerants. Their low boiling points and vapor pressures make them ideal for this purpose. These properties are the basis for their use as aerosol propellants. Such compounds as trichloromonofluoromethane (Propellant 11[1]), dichlorodifluoromethane (Propellant 12), and dichlorotetrafluoroethane (Propellant 114) are examples of some of the propellants utilized in aerosol products. Each propellant has a constant vapor pressure at any given temperature and by varying the propellant, vapor pressures from about 5–140 psig at 70°F. can be obtained. This wide range in vapor pressure, along with their properties of being relatively nontoxic and nonirritating, makes these compounds safe and effective as propellants. The U.S. Food and Drug Administration has already approved several products containing these types of propellants for spraying into the mouth or nose. Each new product must be fully investigated before it is given approval. One of the major propellant manufacturers is currently investigating a new propellant known as octafluorocyclobutane which is reported to be nontoxic, stable, and suitable for use in medicinal and food aerosols.

A propellant compound can be liquefied by either lowering the temperature below its boiling point or by increasing the pressure. When the propellant is below its boiling point or at elevated pressure, it is in the liquid state. This is essentially the basis for the two methods used to fill aerosol products. In the cold process, the active ingredients are weighed, placed into the open container, and cooled. Then the cold propellant is metered into the container and the can sealed by crimping the valve in place. This unit is then heated in a water bath to 130°F. to test for leaks and strength of container. This method is fast but is not generally suited for aqueous and emulsion products. The pressure filling method usually is used for such products. The active ingredients are placed into the container at room temperature. After the valve is crimped into place, the propellant is forced through the valve under pressure. While this method must be used with certain products, it is

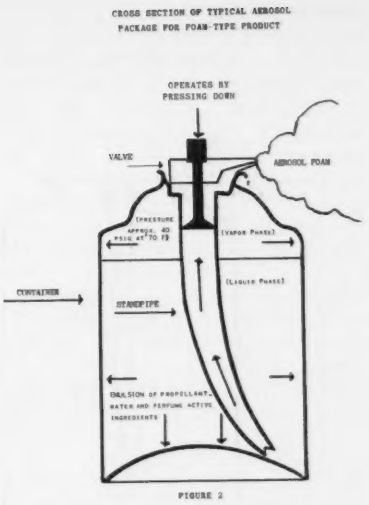

FIGURE 2

slower than the cold fill process. In addition provision must be made to evacuate or remove all the air from the container, otherwise the trapped air will increase the pressure within the container according to Dalton's Law of partial pressures. Both methods are used in the laboratory and in production to fill aerosol products.

Compressed Gas Aerosol

In this type of aerosol product an inert gas such as nitrogen, carbon dioxide, nitrous oxide, etc., is used as the propellant. (See Figure 4.) As the name indicates, the gas is compressed in the container, and it is the expansion of the

Continued on page 674

[1] Supplied under the registered, trademarked names: Freon—E. I. du Pont de Nemours and Co., Inc. Wilmington, Delaware; Genetron—General Chemical Division, Allied Chemical Corp., N.Y.; Isotron—Pennsalt Chemicals Corporation, Philadelphia, Pa.; Ucon—Union Carbide Chemicals Company, N.Y.

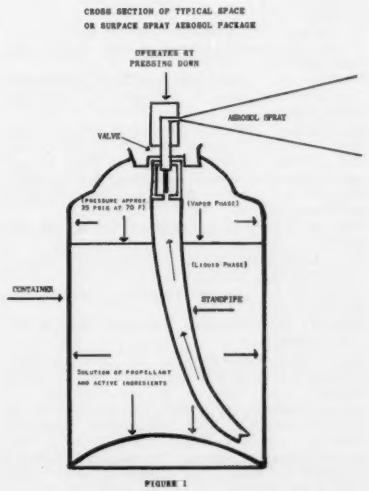

FIGURE 1

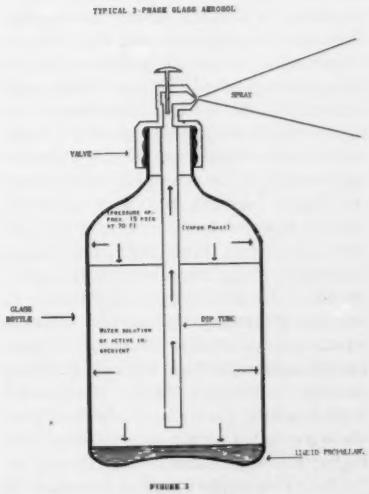

FIGURE 3

Continued from page 673

TYPICAL COMPRESSED GAS AEROSOL

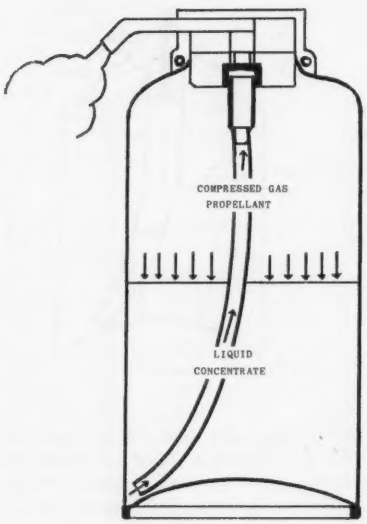

FIGURE 4

gas which provides the push or force necessary to expel the contents from the container. This is essentially the same principle as the liquefied gas aerosol except that there is little or no reservoir of gas so that as the contents of the container are expelled the volume of the gas increases causing a drop in pressure according to Boyle's Law. Nitrogen is essentially insoluble in the mixture of active ingredients so that only product is dispensed and none of the gas. This makes possible the dispensing of a product in its original form and is suited for the dispensing of tooth pastes, hair dressings, ointments and creams, cosmetic creams, cough syrups, vitamins, foods, and a host of other products. It is because of this lack of solubility and the fact that the product is to be dispensed as a stream and not as a spray that one is cautioned not to shake a compressed gas aerosol containing nitrogen prior to use. Nitrous oxide and carbon dioxide, on the other hand, are more soluble than nitrogen in the mixture of active ingredients and are used in such products as whipped creams and toppings. Here shaking prior to use is desired in order to mix some of the gas with the active ingredients and cause whipping of the cream when it is dispensed. The photograph shows some of the dental creams and hair preparations which are currently available. These are all compressed gas aerosols utilizing nitrogen as the propellent. Since there is no liquefied gas, only compressed gas, these aerosols operate at a substantially higher initial pressure of 90–100 psig at 70°F. This higher initial pressure is necessary to insure the dispensing of most of the contents from the container. The amount of product retained in the unit after exhaustion of the pressure varies with the viscosity of the product and loss of pressure due to seepage of gas during storage.

Many medicinal drugs have proved to be more effective when applied as a spray or mist than when applied by other methods. Such drugs as ephedrine, epinephrine, phenylephrine, isoproterenol, and octyl nitrite are available in aerosol package. Medihaler by Riker Laboratories, Aero Meter by Rexall Drug Company, and Mistometer by Winthrop Laboratories, represent some of the products of drug manufacturers administered in aerosol form. These products use fluorocarbon propellant, and the dose of medicinal is accurately controlled by means of a metered valve that insures uniform dispensing of the medication to the patient. Future products may well include antibiotics, vitamins, steroids, antitubercular drugs, atropine, and insulin.

Products packaged in aerosol form would have the following advantages:

1. Speed, ease, effectiveness, and cleanliness of application.
2. The aerosol package is a completely sealed unit so that the product is never exposed to the deteriorating effect of air. There is no danger of contamination from foreign materials or loss of sterility if the product is packaged while sterile.
3. Ability to control particle size results in a product having the desired properties.
4. By use of metered valves, the patient can obtain uniform dosage of medicinal.
5. In aerosol inhalation therapy, the patient can obtain almost instantaneous response to the medicinal, a high concentration of drug over a limited area (lungs for example) and since the medicinal does not pass through the gastrointestinal tract there is less danger of decomposition as compared to oral administration. ■

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Coming Events

Nat'l Who. Drug. Assn.—Nov. 8–13, 84th ann. mtg., Bal Harbour, Miami Beach, Fla.

American Education Week—Nov. 9–15.

Y.W.C.A. World Fellowship Week—Nov. 9–15.

American Dental Assn.—Nov. 10–13, 99th ann. ses., Dallas, Texas.

Veterans Day—Nov. 11, Presidential proclamation.

State University of Iowa—Nov. 14–15, Pharmacy Seminar.

National Society for Crippled Children and Adults—Nov. 16–20, ann. conv., Statler-Hilton, Dallas, Texas.

Int. Conf. on Scientific Information—Nov. 16–21, sponsored by American Documentation Institute, National Academy of Sciences, National Research Council, and National Science Foundation; Mayflower Hotel, Washington, D.C.

Diabetic Detection Drive—Nov. 16–22. Sponsor: American Diabetes Assn., New York 17.

Assn. of Military Surgeons of U.S.—Nov. 17–19, Hotel Statler, Washington, D.C.

University of Rhode Island—Nov. 18–19, 1st ann. Pharmacy Clinic.

Air Pollution Conference, natl.—Nov. 18–20, 1958, Sheraton-Park Hotel, Washington, D.C.

9th Ann. Conf. on Standards—Nov. 18–20, Hotel Roosevelt, New York City.

American Hospital Assn.—Nov. 18–20, Institute on Disaster Planning, Ambassador Hotel, Los Angeles.

World Medical Assn.—Nov. 20–21, International Colloquium on Resistant Infections, Plaza Hotel, New York City.

Int. Colloquium on Resistant Infections—Nov. 20–21, Plaza Hotel, New York City.

Thanksgiving Day—Nov. 27.

American Med. Assn.—Dec. 2–5, Hotel Leamington, Minneapolis, Minn.

Animal Care Panel—Dec. 3, 9th ann. mtg., Hamilton Hotel, Chicago.

Toilet Goods Association—December 8, Scientific Sect., Waldorf-Astoria, New York.

Chemical Specialties Mfgrs. Assn.—Dec. 8–10, 45th ann. mtg., Hotel Commodore, New York City.

Pharmaceutical Manufacturers' Assn.—Dec. 8–10, Mid-year mtg., Waldorf-Astoria Hotel, New York City.

United Nations Human Rights Day—Dec. 10

APhA N.Y. Branch—Dec. 10, Remington Dinner 1958 recipient, Roosevelt Hotel, New York City.

Proprietary Assoc.—Dec. 11–12, Ann. Research & Scientific Dev. Conf., (Dec. 11) and Small-Volume Forum (Dec. 12), Sheraton-McAlpin, New York.

American Association for the Advancement of Science—Dec. 26–31, natl. mtg., Washington, D.C.

National Multiple Sclerosis Society—March 9, 1959, New York City.

APhA 1959 Conv.—Apr. 19–24, 1959, Cincinnati, Ohio.

12th World Health Assembly—May 12, 1959, WHO Hdqrs., Palais des Nations. Geneva, Switzerland.

Aerosol dosage forms

*by Martin Barr, Ph.D.**

DURING THE LAST SEVERAL YEARS, Pharmacy has witnessed the introduction of several new types of dosage forms, among which may be included those which are pressurized. Such products are erroneously referred to as aerosols since many of them do propel particles much beyond the true aerosol range. However, the term "aerosol" has grown with these products and is now used almost exclusively to describe them.

Last year, about 325,000,000 units of aerosol products were produced with a value of $325,000,000. Since the introduction of the first aerosol products, which were originally fostered by the old "bug-bomb" of World War II, the aerosol industry has passed the billionth package mark and is setting its sights at that figure as an annual production rate within 5 years.

Of the many different types of aerosol products being marketed today, only 5 account for approximately three-fourths of the aerosol dollar market. These are space insecticides, room deodorants, hair sprays, shave creams, and paints.

Analyses of the various classes of aerosols on the market reveal that the products which may be classified as pharmaceutical aerosols amount to a fraction of 1%. (In 1956, less than 2,500,000 aerosol packages of medicinal and pharmaceutical items were produced.) There is little doubt that, with proper educational, research, and developmental programs, this percentage may be increased many fold in the coming years.

Aerosol therapy, in the classical sense, is not new in therapeutics. The burning of sulfur candles to disinfect the air; the spraying of operating rooms with anti-bacterial agents; the inhalation of smoke of asthma powder and steam inhalations are examples of aerosol therapy. Aerosol therapy has been effectively carried out with the aid of various mechanical units such as atomizers, nebulizers, vaporizers, and aerosolizers.

A recent advance in therapeutics is the use of those aerosol dosage forms which are dispensed from a container by the use of a propellent. It is this type of product which offers great possibilities to the pharmaceutical industry and with which this paper is mainly concerned.

Advantages of Aerosols

It is an established fact that the cost of a pharmaceutical product marketed as an aerosol must of necessity be slightly higher than that of more conventional type dosage forms. Therefore, in order for a pharmaceutical manufacturer to plan on the development of an aerosol dosage form, he must justify the additional cost. What are some of the advantages of an aerosol dosage form which not only will justify this additional cost but in reality may make the product a cheaper one, one that is more effective therapeutically, and one that is accepted more readily by the public? Let us look at some of the general advantages of aerosols first.

A major advantage of aerosols is their ease of application. Such application is speedy, convenient, uniform, and necessitates very little manual contact with the medicament. Another significant advantage is that the dosage may be controlled by the use of metered valves. Topical medicinal aerosols applied to an injury produce a minimum of irritation to the treated area. Aerosols also can be designed to dry very rapidly when administered topically.

Since an aerosol dosage form is gastight, there is no access of air to the produce. This prevents contamination, evaporation during periods of non-use, and preserves the potency of the active ingredients through the elimination of oxidation, etc.

Many drugs may be administered as aerosols for inhalation therapy. The advantages of this type of aerosol therapy are the possibility of obtaining a high concentration of drug over a limited area, almost instantaneous response to the medication, and less danger of decomposition of the medicament since it does not pass through the gastro-intestinal tract.

Pharmaceutical Applications

A listing of various pharmaceutical products which have appeared on the market as aerosols are listed in Table I. Let us now discuss the types of products which have been or may likely be marketed shortly as aerosols and the advantages of using such dosage forms.

Dermatologicals

The largest number of pharmaceutical aerosols being marketed today are for topical use. It is not unrealistic to philosophize that many externally used products; such as ointments, creams, liniments, lotions, and powders, may some day be dispensed as aerosols. Certainly, there are many advantages of the aerosol dosage form as compared to the conventional ones to indicate this.

One is all too familiar with the fact that there is much waste and messiness produced in the handling of most externally used products by both physician and patient. The time consumed, the nonuniformity of application, and the irritation caused by the manual application of the medication are other well-known disadvantages. The use of these types of products in the form of aerosols would eliminate most of the objectionable features.

There has been much interest shown in the preparation of foot products as aerosols. There are presently on the market pharmaceutical aerosols intended for use on the feet as antiseptics, deodorants, drying powders, cooling preparations, astringents, and fungicides. This is one area where aerosols have been applied and where more work is indicated. It is logical to assume

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* Presented to the Section on Practical Pharmacy, APhA Los Angeles Convention, April, 1958.

that because of the advantages of aerosol dosage forms, most preparations in this field will be aerosols in the near future.

Several pharmaceutical aerosols intended for use as antiseptic applications have appeared on the market in the last few years, some containing antibiotics. These have appeared as both liquid and powder aerosols. The field of anti-infective aerosols, containing any of the commonly used antiseptics or antibiotics, is wide open.

Pharmaceutical aerosols intended for the treatment of poison ivy have appeared on the market. These preparations are of the lotion type. Much remains to be carried out in this area.

Other examples of dermatological classes of preparations which warrant study as aerosols are: steroid-containing topical products, vitamin-containing products, antihistamine preparations, calamine and/or zinc oxide-containing preparations, sulfur and/or resorcinol products, tar-containing products, fungicides, scabicides, burn preparations, anti-pruritics, protectives, cleansers, emollients, and lubricants.

The use of the spray bandage aerosol is of interest. Some limited work has been done in this field. This area is one which warrants further study because of its popular appeal.

Ear, Nose, and Throat Preparations

One area in which it appears that aerosol pharmaceuticals may have great application is in ear, nose, and throat therapy. A few such aerosols, especially for use in the nose and throat, have already been developed.

It seems logical that medicaments may be able to penetrate the nasal tract more effectively and especially the sinuses if administered in the form of an aerosol. Careful studies undoubtedly could correlate the degree of penetration with the particle size of the active constituents in the aerosol preparations.

It is an all too familiar fact that it is difficult to obtain effective concentrations of medicinal substances on the mucous membrane linings of the throat. Much is left to be desired in throat therapy with troches and gargles, since there is not sufficient contact produced between the drug and the throat when these dosage forms are employed. The throat spray, produced by the use of an atomizer, has been resorted to for more effective local throat therapy. In this respect, aerosols appear to have a definite role in the formulation of antibacterial, anesthetic, and astringent preparations for throat therapy.

Very little has been done in the development of aerosols for use in the ear. It appears that there should be a better drug penetration of the middle ear region if medication is applied in the form

Table I—Pharmaceutical Aerosols[a]

"Achromycin" Spray
Lederle Laboratories, Pearl River, N.Y.

Aero-Meter Nasal Spray
Rexall Drug Company, Los Angeles, Cal.

"Aeroplast" Liquid Surgical Dressing and "Aeroderm" Surgical Dressing
Aeroplast Corporation, Dayton, Ohio

"Alke Mist" Burn Treatment
I. Landau Company, Cleveland, Ohio

Aerosol Tronothane Hydrochloride
Abbott Laboratories, Chicago, Ill.

Alco-Mist Body Spray
Rexall Drug Company, Los Angeles, Cal.

"Americaine" Topical Anesthetic
Arnar-Stone Laboratories, Mt. Prospect, Ill.

Bike Athletic Liniment, Antifungal Spray, Skin Toughener, Germicide, Tape and Bandage Adherent, and Tape Remover
The Bike Web Company, Division of Kendall Company, Chicago, Ill.

"Blitz" Cold Relief
Foley and Company, Foley, Ala.

"Burn Spra" for Burns
Spray-Pack Products Company, Cleveland, Ohio

"Cenol Cold Relief" Spray
Cenol Company, Inc., Chicago, Ill.

"Cetacaine" Topical Anesthetic
Cetylite Industries, Long Island City, N.Y.

"Cool Spray" Burn Remedy
Furst-McNess Company, Freeport, Ill.

"Dermafreeze"
Scully-Walton Company, Brooklyn, N.Y.

"Dermoplast" Topical Anesthetic
Doho Chemical Company, Mallon Chemical Division, New York, N.Y.

"Dermeze" Antipruritic Spray
Premo Pharmaceutical Laboratories, South Hackensack, N.J.

"Dil-Mist" Athletes Foot Spray
The Dill Company, Norristown, Pa.

Eez Foot Spray (A foot powder)
Chas. Pfizer & Company, Flushing, N.Y.

F. O. B. (First on Burns) Burn Treatment
E. D. Bullard Company, San Francisco, Cal.

"Foille" Antiseptic, Analgesic Dressing for Burns
Carbisulphoil Company, Dallas, Texas

"Foley's Foot Care"
Foley and Company, Foley, Ala.

"Frigiderm" Topical Anesthetic
Brachvogel-Hovey Company, Los Angeles, California; Scully-Walton Company New York, N.Y.

"Fungi Rex" Spray for Athletes Foot
Rexall Drug Company, Los Angeles, Cal.

"G-4" Foot Spray
National Aerosol Products Company, Beverly Hills, Cal.

"G-63" Burn Relief Spray
Gaby Company, Philadelphia, Pa.

Gard K-7 Foot Spray
Gard Industries, Inc., Wilmette, Ill.

Gebauer's "Alco Spray" Adhesive Tape & Plastic Remover, "Fluoro Ethyl" Topical Anesthetic, SS Spray (soapless detergent), Tannic Spray for Burns.
Gebauer Chemical Company, Cleveland, Ohio

Glide Athlete Foot Spray
Walgreen Company, Chicago, Ill.

Graham Topical Spray
Graham Chemical Corporation, Springfield Gardens, N.Y.

Hexathricin Aeropak (for treatment of burns)
Lincoln Laboratories, Inc., Decatur, Ill.

"Hexene-Ol" Burn Spray
The Hexene-Ol Laboratories, Inc., Cleveland, Ohio

Inhalant Aerosol Bomb (veterinary)
C. V. McClellan Labs. Corp. Gardena, Cal.

Isuprel Mistometer
Winthrop Laboratories, New York, N.Y.

"Kair" Allergy Spray for Hay Fever
Victor Van Der Lind Company, New York, N.Y.

"Kip" Antiseptic Oil
E. D. Bullard Company San Francisco, Cal.

Larsons' Adhesive Balm (pretape spray), Dr. Larsons' Foot Note Spray
Larson Laboratories, Inc. Erie, Pa.

Mark Foot Freshener & Deodorant
E. I. Jacobs Company, Indianapolis, Ind.

"Medex" Transparent Spray Bandage
General Cosmetic Corporation, Chicago, Ill.

Medicspray (A spray bandage)
Medicspray Company, Chicago, Ill.

Medihaler-Epi (Epinephrine) asthma relief spray, Medihaler-Iso (Isoproterenal) asthma relief spray, Medihaler-Nitro (Octyl Nitrite) for relief of angina pectoris, Medihaler-Phen (Phenylephrine) for relief of nasal congestion
Riker Laboratories, Inc. Los Angeles, Cal.

Merthiolate Spray
Rexall Drug Company, Los Angeles, Cal.

Meti-Derm Topical Spray
Schering Corporation, Bloomfield, N.J.

"My-Ex" Medicated Foot Spray Ice
The Dill Company, Norristown, Pa.

N-B-T Spray (Topical anesthetic)
Novocol Chemical Manufacturing Co., Brooklyn, N.Y.

Neo-Band (A spray bandage impregnated with neomycin)
Rowell Laboratories, Baudette, Minn.

"Nitrotan" Germicide Spray
Cramer Chemical Company, Gardner, Kan.

Picardy Air-Puff (Antiseptic Powder)
Picardy, Inc. Newark, N.J.

"Powder Puff" Foot Powder Spray
James Varley & Sons, Inc., St. Louis, Mo.

Prophast (Dental cleaner)
Allied Professional Associates Buffalo, N.Y.

"Q-D-A" (Skin spray to reduce or eliminate tape rash)
Cramer Chemical Company, Gardner, Kan.

"Rex Salvine" Spray for burns
Rexall Drug Company, Los Angeles, Cal.

Rexall Poison Ivy Lotion
Rexall Drug Company, Los Angeles, Cal.

'Rhulispray" Poison Ivy Lotion
Lederle Laboratories, Pearl River, N.Y.

Schuco Spray Band
Schuco Industries, Inc., New York, N.Y.

Shoo Foot Spray
Foley and Company, Foley, Ala.

Sprayderm—for poison ivy & heat rash
Westwood Pharmaceutical Company, Buffalo, N.Y.

Sprayway Burn Ease Sun Burn Cream
Sprayway, Inc., Chicago, Ill.

Mr. Standby Burn Balm Dressing
Standby Products, Inc., St. Louis, Mo.

"Sterifome" Surgical Soap
DeMert & Dougherty, Inc., Chicago, Ill.

Stride Foot Powder Spray
Lehn & Fink Products Company, New York, N.Y.

Sun Burn Cream
Rexall Drug Company, Los Angeles, Cal.

Surfadyne (An anesthetic & adjunct to healing)
Allied Professional Associates, Buffalo, N.Y.

"Ta-Poff" Adhesive Tape Remover
Ulmer Pharmacal Company, Minneapolis, Minn.

'Topicort" (for relief of itching and inflammation)
Roussel Corporation, New York, N.Y.

Topocaine (dental anesthetic applied to gums before novocaine injection)
Allied Professional Associates, Buffalo, N.Y.

"Tuf-Skin" Spray (spray on skin to reduce or eliminate tape rash)
Cramer Chemical Company, Gardner, Kan.

"Vapex" Air Spray
W. Allen Chemical Company, Ltd. Montreal, Canada

"Verdefoam" Athletes Foot Remedy
Texas Pharmacal Company, San Antonio, Texas

Vi-Daylin Pressure-Pak (A liquid multivitamin)
Abbott Laboratories Chicago, Ill.

Williams Foot Ice
Newman Products Company, New York, N.Y.

[a] Most of this list was made available by the Freon Products Division, E. I. Du Pont de Nemours and Company, Wilmington, Del.

of an aerosol. Conditions such as "otitis media" may be treated locally in a more successful manner by the use of aerosols.

Dental Preparations

Some limited work has been done in the development of pressurized dosage forms for dental use but much more work is indicated. Products such as local anesthetics, anodynes, emollients, astringents, and antibacterials may be conveniently and effectively administered as aerosols. Interest is being shown at present in dental aerosols intended for use in oral prophylaxis. Breath sweeteners, stain removers, and tooth polishers are types of products which might be utilized as aerosols.

Rectal and Vaginal Preparations

There have been some applications of aerosols products in gynecological therapy. However, the development of pharmaceutical aerosols for possible use in the treatment of local rectal and vaginal conditions has not been significantly explored as yet. By the use of specially shaped containers and valves, it should be possible to apply medication locally to those areas in a more convenient and effective manner than has heretofore been possible.

In this respect, effective use may be made of aerosol dosage forms in applying anti-infectives, deodorants, and perhaps contraceptives to the vaginal tract. A deeper penetration of the tract would appear to be possible if a pressurized dosage form is used.

In the case of rectal therapy, use may be made of aerosols as a dosage form for the application of local anesthetics, antipruritics, anti-infectives, and astringent medication.

Another possible application of rectal or vaginal aerosols is for the administration of drugs intended to be absorbed systemically. Rectal and vaginal suppositories are sometimes utilized in therapeutics as dosage forms for drugs that are intended to be absorbed systemically when it is not possible to obtain such absorption by administering the medication either orally or by injection, or where a more desirable therapeutic effect is obtained when the drug is administered in such a manner. Examples of drugs administered in this way are the barbiturates, hormones, and bronchodilators. Studies are indicated, therefore, in order to establish whether various medicinal agents are absorbed through the mucous membrane linings of the vagina and rectum and whether their use as aerosols for systemic absorption is indicated.

Inhalation Therapy

Inhalation therapy has been used effectively in medicine for a number of years. The apparatus used in such therapy is usually the atomizer. However, the use of this instrument is often considered to be quite inconvenient to the patient because of its size, wastefulness, and time consumed in its operation. It is also difficult to control particle size when such an instrument is employed.

Recently, aerosol dosage forms have been introduced for inhalation therapy. Such forms of administration offer many advantages to the patient. Besides their highly effective therapeutic usefulness, they have added convenience to inhalation therapy due to the development of specially designed packages and the introduction of metered valves which permit the accurate control of dosage. Only a few such aerosol products are commercially available at present although many are being studied

It is well known that many drugs are capable of being absorbed rapidly from mucosal cells by inhalation. In such cases, there is prompt entrance of the medicament to the blood through the alveolar membrane; in fact, in some cases, inhalation therapy approaches the speed of intravenous therapy in its onset of action.

The effectiveness of a medicament in aerosol form is dependent to a high degree upon particle size. For example, the particle size of aerosols intended for application to the lungs must be small enough to be carried by the air stream through the nasal cavities, pharynx, larynx, and trachea and yet large enough so that they will be deposited on the lung tissue.

Before intelligent developmental work may proceed in the field of inhalation aerosols, much basic information must be obtained concerning the physical and chemical relationships between the propellents and medicaments which would find use in inhalation therapy. The factors which influence the localization site of the aerosolized medicaments (pressure, particle size, etc.) would also have to be established.

Many inhalation aerosols have been intended for their local pulmonary action. Thus, penicillin and streptomycin aerosols have been administered by inhalation as adjuncts in the treatment of bronchopulmonary ease; epinephrine aerosols have been used in the treatment of bronchial asthma; and aleudrine, cocaine, procaine, lobeline, or picrotoxin taken by a human subject can cause an immediate increase in lung volume without producing systemic effects. Substances such as ephedrine, amphetamine, neosynephrine, aminophylline, and ammonium chloride have been used as well as epinephrine as pneumodilating agents in the treatment of bronchial asthma.

It has also been shown that significant systemic action may be demonstrated when certain medicinal agents are administered as aerosols. Among these may be included various vasoconstrictors, vasodilators, cardiotonics, diuretics, convulsants, central nervous stimulants and depressants, hormones, and antibiotics. In these cases, the medicaments are not localized on the pulmonary tissues but are actually absorbed into the blood.

Some consideration has also been given to the administration of serums, antitoxins, antigens, pollen extracts, histamine, antihistamines, vaccines, and anti-tubercular drugs in the form of aerosol inhalants.

The field of aerosol inhalants has hardly been scratched. Because of the present-day convenience of inhalation therapy brought about by the development of the aerosol dosage form, much investigational work has been stimulated in order to establish which therapeutic agents may be administered with pharmacological advantages of inhalation. It appears that this field is almost unlimited and one to which pharmaceutical manufacturers should turn their attention.

Potential Pharmaceutical Aerosol Market

In evaluating the potential growth of aerosols in the pharmaceutical field, one must look at the total market value of the classes of products for which applications may be made. The results of a survey by the author indicating this market appear in Table II. The figures in the table represent an average of several reviewed surveys.

Table II—Market Value of Pharmaceuticals with Possible Aerosol Applications (In millions of dollars)

	Total	Ethical	Proprietary
Topical Analgesics	30	10	20
Topical Anesthetics	2	1.5	0.5
Topical Antiseptics	15	12	3
Topical Antibiotics	7	6	1
Burn Remedies	8	2.5	5.5
Steroid Hormones	10	10	0
Fungicides	6	4	2
Nasal Preparations	18	15	3
Ear Preparations	6	5	1
Throat Preparations	13	11	2
Vaginal Preparations	13	13	0
Rectal Preparations	12	5	7
Others[a]	50	35	15
Total	190	130	60

[a] Includes dental products, a large number of possible inhalation products, etc.

Investigation of Table II reveals that the total dollar market for pharmaceuticals for which aerosol applications may be found amounts to $190,000,000. This total is in near agreement with that recently reported by E. I. du Pont de Nemours & Company which reported a total market of $200,000,000 in pharmaceuticals which might be packaged

as aerosols in 1960. If only 10% of this market is effectively converted into aerosol dosage forms, the potential market value for pharmaceutical aerosols should reach about $20,000,000, about 6 times its present value. It is the author's opinion that this estimated potential is very conservative and should be doubled at least.

A great majority of pharmaceutical aerosols being marketed today are of the proprietary type. These types of products are sold in various outlets besides a pharmacy and naturally do not require a prescription. A good number of them are not marketed by pharmaceutical manufacturers but are actually distributed by individuals outside the major pharmaceutical field. Practically all of these products were developed either by an aerosol consultant or a contract loader.

Although the importance of proprietary pharmaceuticals is recognized, it is believed that the major growth for pharmaceutical aerosols will not reach its potential until more interest is shown in them by the major pharmaceutical manufacturing industry. It is further believed that the major pharmaceutical manufacturing industry is interested in aerosol dosage forms, but will not produce them unless specialty products may be found. It is by the manufacture of such specialties that the manufacturers can expect to profit on their researches; they prefer to have them available to the public on prescription only. For the most part, they refuse to enter in "over-the-counter competition" through the sale of general proprietaries.

Of all the potential classes of products lending themselves to aerosol applications, the group of inhalation products appears to have great interest for the pharmaceutical manufacturing industry. Before such products are widely used, much research is necessary to establish whether aerosolized drugs are absorbed systemically or, if localized, in what site. The factors which govern these phenomena must be studied. The therapeutic effectiveness of medicinals when administered by inhalation as aerosols and the toxicology of the propellents must be conclusively established.

Summary

Aerosols are now available for investigation as pharmaceutical dosage forms. An analysis of the types of pharmaceuticals which may be used effectively as aerosols in the near future reveals a possible market of at least $190,000,000. With the aid of imaginative research and development programs, there is every reason to believe that a good portion of this market can be represented by aerosol products within the next few years. ■

Helping Detect Diabetes

A Responsibility for Pharmacists

On the cover of this issue of THE JOURNAL is the text of a panel on diabetes which is being supplied by the APhA to all pharmacists who have purchased the new public relations display which was shown on the cover of the August issue. The basic displays are available for $3.90 each from the Committee on Public Relations, American Pharmaceutical Association, 2215 Constitution Avenue, N.W., Washington 7, D.C

Several panels dealing with related health activities are being planned and will be made available to purchasers of the display at no extra cost. The first of these panels will arrive in time for Diabetes Week, November 16–22.

Pharmacists know a great deal about diabetes—and they probably are acquainted with more diabetics than anyone else in the neighborhood. Pharmacists know that when diabetes is found early enough and treated, the patient lives a nearly normal life.

Pharmacists also know something about what happens when diabetes is *not* detected or when the known diabetic does not put himself under good medical care. Furthermore, they are key men in the health affairs of each community, and the pharmacy or drug store is potentially one of the most important outlets for information on health subjects.

For these reasons the American Diabetes Association—an organization of physicians—makes a special appeal to pharmacists to cooperate in its Diabetes Detection Drive.

What is the Diabetes Detection Drive?

The Drive is an educational campaign designed to find unknown diabetics and guide them to good medical care. (It is *not* a fund-raising effort.) Its importance can be judged from these facts:

- More than 1,000,000 diabetics lead quite normal lives.
- Almost 1,000,000 more people have diabetes but do not know it. These undiscovered diabetics may become debilitated unless they are diagnosed and treated in time.
- About 4,750,000 more are *potential* diabetics, whose illness may develop as time goes on; individuals in this group, too, may be helped by early medical advice.

Because early diagnosis and treatment are so important in enabling diabetics to lead successful lives, the American Diabetes Association carries on a continuous Diabetes Detection Drive. This year-round effort is featured by an annual, nation-wide Diabetes Week, during which as many persons as possible are given a quick, simple test for excess sugar in the blood or urine. A positive test is a sign that diabetes may be present.

How is diabetes detected?

As all pharmacists know, tests for sugar are performed on small amounts of either urine or blood. In mass detection campaigns, such as those of Diabetes Week, however, urine tests are used almost exclusively. The material for several types of these tests should be kept in stock.

If the Dreypak, one of the most recently developed tests, is used, a person dips a small piece of specially treated paper into urine, lets the strip dry, and sends it to the testing center. Under other procedures—still widely used—the testing center must have an actual specimen of urine.

Who is in charge?

Responsibility for organizing and carrying out the Diabetes Week program in a given community is taken either by the Committee on Diabetes of the local medical society or by the local affiliate of the American Diabetes Association.

But the physicians have to count on a great deal of help from other groups. In addition to the pharmacists in a community, these include the schools, parent-teacher associations, chambers of commerce, the Red Cross and other health agencies, hospital and clinic staffs, business men and industrialists, labor unions, women's organizations, church groups, 4-H Clubs, and the Grange.

What can the pharmacist do?

The goal of Diabetes Week is to have as many persons as possible tested for one of the major signs of diabetes, sugar in the urine, and to encourage those with positive tests to see their physicians. Here are some general suggestions:

1. *The pharmacist can publicize and promote Diabetes Week by:*
   - displaying posters distributed by the American Diabetes Association through the local committee or designed locally, perhaps by the schools.
   - making available to his customers leaflets about Diabetes Week supplied through the local physicians' committee.
   - creating displays about diabetes from educational material provided by the committee.
2. *He can distribute testing materials.*
3. *He can open his store as a collection station.*
4. *He can answer questions about the Diabetes Week campaign.*

What is the first thing to do?

If a pharmacist has not already been approached, he should get in touch with the local physicians' Committee on Diabetes. This will have been appointed either by the County Medical Society or, if there is one, by the local Affiliate of the American Diabetes Association, or by both groups.

For any additional information about Diabetes Week and the year-round Diabetes Detection Drive, get in touch with your local Medical Society or Diabetes Association. For printed material on the problem of diabetes and for sample copies of the diabetics' own magazine, *ADA Forecast*, write to the American Diabetes Association, 1 East 45th St., New York 17, N.Y.

An evaluation of methods used in the preparation of

fused ointment bases

*by James C. Price, M.S., and George E. Osborne, Ph.D.**

It is common pharmaceutical knowledge that an ointment may be considered to be made up of two parts—the base and the active or medicinal ingredient. The base acts as the vehicle or carrier for the active ingredient; hence, the base may be said to be the ointment without a medicament. In many cases the base is made up in stock quantities and stored; the medicament is then incorporated into it as the need for the ointment arises.

Three general methods are used to prepare ointment bases: simple mechanical mixing, used when soft fats and oils constitute the base; emulsification, used if the base consists of both an aqueous and an oily phase which can be brought together with the aid of an emulsifying agent; and fusion, used when one or more of the ingredients is a wax or other hard, fusible substance. A cursory study of the official ointments clearly shows that the bases of the great majority of them are prepared by fusion, either at the time the ointment is made (as for many of the ointments in the *National Formulary*) or prior to the actual manufacture of the ointment, in which case the base is prepared as stock (as for many of the ointments of the *United States Pharmacopoeia*).

Since the USP VIII (official from 1905), the directions for the preparation of fused ointments have been that the highest melting constituents are liquefied first and the remaining ingredients are added to the melt in the order of their decreasing melting points. For example, the USP XV directions for compounding white ointment are:

"Melt the white wax in a suitable dish on a water bath, add the petrolatum, warm until liquefied, then discontinue the heating, and stir the mixture until it begins to congeal."

Authors of textbooks in Pharmacy have generally supported this order of mixing. Two examples, taken from prominent dispensing texts, will illustrate this point: *Scoville's The Art of Compounding* (1957) directs:

"In mixing these bodies the invariable rule to be followed is to *melt the body having the highest melting point first, then add that having the next highest.*

"Never place the cold ingredients together in a pan or casserole and try to melt all at once, because when this is done it is necessary to heat the entire mass to the melting point of the highest [melting] body before all will be melted, and more time and labor are required to secure a smooth fat from this hot liquid."[1]

Husa, in *Pharmaceutical Dispensing* (1951), instructs:

"In mixing ointment bases by fusion the ingredient having the highest melting point is shredded and placed in a porcelain dish on a water bath over a low flame and melted at the lowest possible temperature. The ingredient having the next highest melting point is then added and the mixture stirred and any other bases then added in order of decreasing melting points. In this way the whole base is not heated up to the highest temperature and the result will be obtained more quickly."[2]

Authors

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JAMES C. PRICE received his baccalaureate degree in pharmacy from the University of Arkansas with honors, and he was awarded the Lehn and Fink Gold Medal for Scholarship. He took his master's degree in 1957 at the University of Utah, and since September of that year he has been a Graduate Assistant in Pharmacy at the College of Pharmacy of the University of Rhode Island, where he is presently continuing his studies toward the doctorate degree. Mr. Price is a member of Phi Delta Chi Fraternity and of Rho Chi Society.

* Presented to the Section on Practical Pharmacy, APhA New York Convention, May 1, 1957. Received from the laboratories of the College of Pharmacy, University of Utah, Salt Lake City, Utah.

[1] Jenkins, Glenn L., Francke, Don E., Brecht, Edward A., and Sperandio, Glen J., *Scoville's The Art of Compounding*, Ninth Edition, 1957. The Blakiston Company, Philadelphia, p. 357.

[2] Husa, William J., *Pharmaceutical Dispensing*, Fourth Edition, 1951. Husa Brothers, Iowa City, Iowa, p. 194.

[3] Crossen, George E., and Goldner, Karl J., *Pharmaceutical Preparations*, Third Edition, 1952, Lea and Febiger, Philadelphia, p. 97.

[4] Lee, Charles O., *The Official Preparations of Pharmacy*, Second Edition, 1953, The C. V. Mosby Company, St. Louis, p. 307.

[5] Lyman, Rufus A. and Sprowls, Joseph B., *American Pharmacy*, Vol. I, Fourth Edition, 1955, J. B. Lippincott Company, Philadelphia, p. 334.

[6] Martin, Eric W., and Cook, E. Fullerton, *Remington's Practice of Pharmacy*, Eleventh Edition, 1956, The Mack Publishing Company, Easton, Pa., p. 346.

[7] Thomssen, E. G., *Modern Cosmetics*, Third Edition, 1947, Drug and Cosmetic Industry, New York, p. 133.

Neither the origin nor the justification of this rationale has been discovered, nor has it apparently ever been questioned by practicing pharmacists, nor by pharmaceutical educators and writers who have accepted it, borrowed it, and handed it down for fact in texts on dispensing and general pharmacy.[3,4,5,6]

Contradicting these instructions, however, are those to be found in cosmetic literature regarding formulas involving fusion. These directions may read simply, "Melt the ingredients together," with no mention made of melting points. Thomssen, in *Modern Cosmetics* (1947), has this to say:

"Manufacturing directions at times specify melting the highest melting fat or wax and then adding the other materials in order of their melting points, ostensibly to keep the temperature of the mixture low. These directions are somewhat impractical, since they result in a higher temperature than necessary. Oils should be heated first and then fats and wax dissolved in the hot oils. Thus, by solution rather than melting, the temperature of the whole batch can be kept well below the melting point of the highest melting constituent."[7]

Because of this conflict of opinion, it was thought important to undertake an examination of these claims and to arrive at a method of preparation for fused ointment bases that would be the least time consuming and involve the lowest peak temperature during preparation of the ointment.

Procedure

White and yellow ointment (both USP XV) were selected as typical bases manufactured by fusion. All products in the experiments reported were prepared in 100 Gm. quantities, in 250 ml. Pyrex glass beakers, on water-baths heated by an electric hot plate (steam temperature 94.5° to 95.5°). The ointments were stirred by hand (wax, in the official procedure, had a tendency to congeal about the blades of a mechanical stirrer), using centigrade thermometers, from which the temperature readings were made, as stirring rods; this breach of good technique was considered justified in the interests of getting better overall temperature readings, particularly in the cases where the quantity of molten wax was small. Each value reported is derived from at least 5 determinations. The mean and standard error of the mean were calculated for the temperature and time of melting of the wax, and for the temperature and time of complete fusion of the batches of ointment. The ingredients were taken from the same lots, reserved for this purpose, and were in all cases at room temperature at the start of the experiments. When lump wax was used, it was reduced so that the volume of each piece approximated 1 cm^3.

The first series of experiments was designed to test the proposal by Thomssen that wax can be dissolved in hot oils; first, white petrolatum was melted and then white wax was added as soon as the petrolatum was completely liquefied. The temperature was purposely not allowed to exceed 57°, five degrees below the figure given by USP XV as the lower limit for the melting range of white wax. The extended time consumed in these experiments led to the procedure hereinafter called the "simultaneous" method, which, in violation of Scoville's explicit rule, consisted of placing the cold ingredients together in a common vessel to be melted all at once by heat derived from a boiling water-bath with no other control of the temperature (i.e., the temperature was allowed to rise above 57°).

The second series of experiments was then carried out to compare this procedure with the USP or traditional technique: white ointment was prepared by each of these methods, contemporaneously.

The third series of experiments was the same as the second, except that the wax was grated in accordance with Husa's suggestion. It must be noted that his refinement of technique is not a part of the directions in USP XV, the NF IX, nor in any of the texts in general pharmacy or, excepting Husa, dispensing pharmacy.

In parallel series of experiments, the preparation of yellow ointment was studied.

Results and Discussion

In the first series of experiments the white petrolatum melted at 57° in 5.67 minutes, the temperature drop on the addition of the white wax was imperceptible, and the whole was fused in 116 minutes at the control temperature of 57°. Since white wax alone melts between 62° and 65°, as compared to the 57° control temperature, it must be concluded that the hot melt had some solvent action on the white wax. Further, these results suggested that, contrary to pharmaceutical tradition, it is *not* necessary to attain somewhere in the melting process the temperature of the highest melting ingredient to bring about complete fusion. On the other hand, the time involved in making maximum use of the solvent action of hot oils would preclude such a tedious operation in practice, except in the case of extremely heat-sensitive constituents, where stability would take precedence over time.

The comparison of the time-temperature relationships for the traditional and simultaneous methods for preparing white ointment is shown in Tables I and II and in Figure 1. In the graph temperature in degrees centigrade is plotted along the ordinate, and the time in seconds is plotted along the abscissa. The shaded area shows the melting range of white wax. The curve plotted along the open circles represents the readings from the traditional method, and the curve plotted along the filled circles represents the readings from the simultaneous method. It can be seen that a peak temperature of 77° was reached in the traditional method of manufacture in 168 seconds, that on the addition of white petrolatum to the melt, the temperature dropped to 40°, and that complete fusion was obtained in 554 seconds at a final temperature of 63.8°. The 12° difference in the peak temperature over that given by USP XV for the upper limit of the melting range of white wax can be explained by the fact that, after a part of the wax had melted and while the solid wax remaining was absorbing sufficient calories to overcome its latent heat of fusion and change from the solid to the liquid state, the temperature of the liquefied material continued to rise. The drop in temperature on the addition of the white petrolatum accounted for a congelation of the wax, which was noted. The graph shows also that the preparation of white ointment by the simultaneous method required 493 seconds and, following a gradual rise in temperature, attained a peak (and final) temperature of 65.5°, recorded at the time of fusion.

Table I. The Temperature and Time Relationships During the Preparation of White Ointment by the Traditional Method, Using Lump Wax.

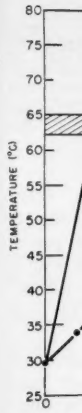
Batch number	Temperature (°C) of melted wax	Time (seconds) to melt wax	Temperature (°C) at completion of fusion phase	Time (seconds) to complete fusion phase	Peak temperature (°C) reached
1	78.0	170	64.5	551	78.0
2	76.0	160	64.5	545	76.0
3	77.0	180	64.0	543	77.0
4	77.0	180	63.0	570	77.0
5	77.0	150	63.0	560	77.0
Mean	77.0±0.1	168±5.8	63.8±0.4	554±5.0	77.0±0.1

±Standard error of the mean.

Table II. The Temperature and Time Relationships During the Preparation of White Ointment by the Simultaneous Method, Using Lump Wax.

Batch number	Temperature (°C) at completion of fusion phase	Time (seconds) to complete fusion phase	Peak temperature (°C) reached
1	67.0	490	67.0
2	66.5	523	66.5
3	65.0	500	65.0
4	65.0	492	65.0
5	64.0	458	64.0
Mean	65.5±0.6	493±10.4	65.5±0.6

±Standard error of the mean.



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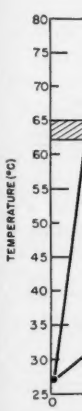

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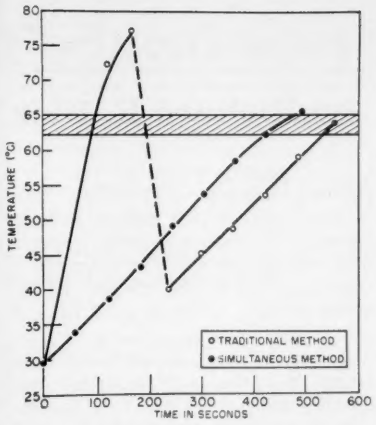


Fig. 1. Temperature and Time Relations During the Preparation of White Ointment by the Traditional and the Simultaneous Methods, Using Lump Wax.

Figure 1 shows further that when the cold ingredients were placed together in a vessel and heated all at once and the temperature was permitted to rise as heat was absorbed from the boiling water-bath source, the temperature *did* come to that of the melting point of the white wax; at the same time, however, the graph shows clearly a 11.5° difference in mean peak temperatures, to which the traditional method of manufacture, which implicitly or explicitly has been supposed to guard against excessive heat, contributed the higher reading. The final temperature reached during this method fell within the melting range of the white wax, in these experiments only 1.7° below that reached during the simultaneous method. The mean time required for the simultaneous method was 61 seconds less than that for the traditional procedure; thus the former method appears to offer both temperature and time advantages in the manufacture of white ointment.

The results obtained when the wax was grated before being used in the traditional and in the simultaneous methods are shown in Tables III and IV and in Figure 2. The construction, symbols, and lines employed in this figure are the same as those for the preceding one. It was anticipated that grating the wax might eliminate the overshoot in temperature beyond the melting range of the wax on its initial melting in the traditional method; however, the tendency toward the same excessive temperature was observed. In this case all the wax was melted in 99 seconds at a temperature of 76.8°, the temperature fell to 32° on the addition of the white petrolatum, and complete fusion occurred in 506 seconds at 64.2°. White ointment prepared by the simultaneous method, using grated wax, required 464 seconds for complete fusion and attained a peak (and final) temperature of 64°. A comparison of Figures 1 and 2 will reveal that the temperature relationships were not significantly different. Time was shortened when the wax was grated and used in either method; however, the extra labor and time required to grate the wax must be considered.

No differences were observed in color, odor, or consistency in either the white or yellow ointments prepared by the two methods, when tested by gross and microscopic techniques. Such differences would hardly be expected, however, inasmuch as the simultaneous method curve was of a character practically identical to that of the portion of the traditional method curve lying past the point of addition of the white petrolatum, where in reality there is simultaneous fusion. It might be said that the traditional method is merely a delayed simultaneous method.

The preparation of white and yellow ointments by the traditional and the simultaneous methods showed that substantially lower peak temperatures were reached during manufacture by the simultaneous method. In addition, less time in general was required to complete the fusion phase of the ointment by the latter method. Furthermore, it is expedient to place the ingredients in the preparation vessel all at once. Therefore, the simultaneous method would appear to be the method of choice for the preparation of these ointments by fusion.

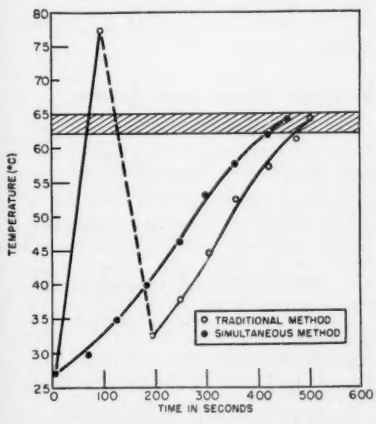


Fig. 2. Temperature and Time Relations During the Preparation of White Ointment by the Traditional and the Simultaneous Methods, Using Grated Wax.

Table III. The Temperature and Time Relationships During the Preparation of White Ointment by the Traditional Method, Using Grated Wax.

Batch number	Temperature (°C) of melted wax	Time (seconds) to melt wax	Temperature (°C) at completion of fusion phase	Time (seconds) to complete fusion phase	Peak Temperature (°C) reached
1	80.0	120	64.0	510	80.0
2	73.0	80	65.0	508	73.0
3	77.0	100	65.0	501	77.0
4	77.0	100	63.0	530	77.0
5	77.0	95	64.0	480	77.0
Mean	76.8±1.1	99±6.4	64.2±0.4	506±7.6	76.8±1.1

±Standard error of the mean.

Table IV. The Temperature and Time Relationships During the Preparation of White Ointment by the Simultaneous Method, Using Grated Wax.

Batch number	Temperature (°C) at completion of fusion phase	Time (seconds) to complete fusion phase	Peak temperature (°C) reached
1	64.0	463	64.0
2	64.0	455	64.0
3	64.0	543	64.0
4	64.0	462	64.0
5	64.0	486	64.0
Mean	64.0±0.0	464±5.9	64.0±0.0

±Standard error of the mean.

Summary

To study the controversy whether fused ointment bases are better prepared by the traditional method of melting the highest melting ingredient first and adding the other ingredients in order of decreasing melting points or by some other method that might make more efficient use of the solution interaction of the ingredients during the melting phase, fused ointment bases were prepared under conditions of carefully observed time and temperature. Results indicated that, when lower melting constituents were liquefied, they did exert some solvent action on those with higher melting points. When this observation was applied to the manufacture of fused ointment bases, it became reasonable to utilize this solvent action and revise the traditional pharmaceutical procedure such that all ingredients to be melted were placed together in a common vessel and heated simultaneously until complete fusion resulted.

When this method was employed in the manufacture of fused ointment bases, substantially lower peak temperatures were observed. Preparation time was less. Moreover, less labor was involved when the ingredients were added together at the beginning of the procedure, and less continuous attention to the process was required of the operator. Therefore, it is suggested that directions for compounding fused ointments be made to read, "Melt the ingredients together simultaneously." ■

Economics

by Richard R. Dier

1958 Retail Pharmacy Sales Continue Upward

Sales volumes of retail pharmacy and proprietary stores continued to advance in the first half of 1958.

According to the *Nielsen Researcher*, January–February 1958 sales were 9.6% ahead of the corresponding 1957 period; March–April 1958 sales ran 7.2% above 1957; and May–June 1958 sales increased 4.9% over 1957.

The May–June 1958 increase, when broken down into sections of the country, varied considerably (see chart I).

August Consumer Price Index

Although consumer prices declined 0.2% between July and August 1958, the medical care cost index reflected a rise of 0.3%. This rise was due to higher premiums for group hospitalization insurance in three small cities, higher fees for professional and hospital services, and increased prices of prescriptions and drugs.

The medical care cost index stood at 145.0 in August 1958, an increase of 4.6% from August 1957 (1947–49 equals 100).

A medical care cost index for 10 U.S. representative cities shows Scranton with a low of 127.5 and Cleveland with a high of 152.8. Strangely enough, the city of New York which is considered to have a high cost-of-living has an index of only 131.0 (see Table I).

Taxes

Federal, State, and local taxes took more than $100,000,000,000 of taxpayers' money in 1957. This figure approximates 27.5% of the $364,000,000,000 earned by Americans last year.

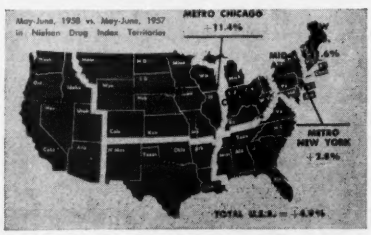
Retail Pharmacy Business Failures

Retail pharmacy failures totaled 114 with total liabilities of $2.9 million during the period January–August 1958. This compares with 104 failures totaling $2.7 million during the comparable period in 1957, according to *Dun's Review and Modern Industry*.

Inventory

Retail pharmacists apparently ended the inventory recession of the first 5 months of 1958, according to the U.S. Department of Commerce, when they began replenishing their stocks in June. Smith, Barney and Company's Research Department reports that during each of the first 5 months of the year retail sales showed larger percentage increases than wholesale volume, indicating that pharmacists were cutting inventories. This trend reversed itself in June and should bolster the sales trend of the industry during the last half of 1958.

Chart I—Retail Pharmacy and Proprietary Stores Sales Trends[a]



Changes in sales volumes of retail pharmacy (May–June 1958 vs. 1957) for the various sections of the country differed widely: Pacific, +7.5%; West Central, +5.0%; Southwest, +8.7%; East Central, −2.5%; Southeast, +7.1%; Middle Atlantic, +2.3%; New England, +11.6%.

[a] Source: *Nielsen Researcher*

High Cost of Drugs Theory False

Contrary to often-heard expressions by the public, the lay press, and more recently by a few congressional legislators that drugs cost too much, the truth is that drugs and prescriptions have risen less in price in this inflationary era than most other consumer costs.

U.S. Production and Sales of Medicinals in 1957 Set New Records

The U.S. Tariff Commission has issued a preliminary report on production and sales of medicinals last year.

Total output of medcinals (in bulk) in 1957 was 98.5 million pounds, or 10.2 percent more than the output of 89.4 million pounds reported for 1956. Sales in 1957 totaled 79.9 million pounds, valued at 576 million dollars, compared with sales in 1956 of 73.1 million pounds, valued at 506 million dollars—an increase of 9.3 percent in quantity and 13.8 percent in value.

In terms of value, the antibiotics (as a group) were the most important medicinals produced in 1957. Total production of all antibiotics for human and veterinary purposes in 1957 was 2.4 million pounds or 20.0 percent more than the 2.0 million pounds reported for 1956. Sales in 1957 were 2.0 million pounds, valued at $324,000,000—an increase over 1956 of 17.6 percent in quantity and 19.6 percent in value.

Among other important groups of medicinals produced in 1957 were the vitamins, the combined output of which was 8.6 million pounds compared with 7.2 million pounds in 1956. Sales of all vitamins in 1957 totaled 6.5 million pounds, valued at 79.8 million dollars.

Production of hormones in 1957 amounted to 52,000 pounds, compared with 56,000 pounds in 1956; sales in 1957 were only 10,000 pounds compared with 26,000 pounds in 1956, but the value of sales in 1957 was 25.7 million dollars, only slightly under the value of sales of 25.9 million dollars in 1956.

The medicine produced in largest quantity in 1957, as in previous years, was acetylsalicylic acid (aspirin), the output of which was 18.1 million pounds.

Production of the barbiturates totaled 755,000 pounds in 1957—only 1,000 pounds less than the output in 1956.

Production of all tranquilizers was 964,000 pounds in 1957; sales were 755,000 pounds, valued at 8.7 million dollars.

Table I—Consumer Price Index[a]

City	Medical care
U.S. city average	145.0
Chicago	150.6
Cleveland	152.8
Detroit	152.3
Houston	132.2
Los Angeles	137.6
New York	131.0
Philadelphia	148.6
Scranton	127.5
Seattle	148.2
Washington, D.C.	140.2

[a] Source: U.S. Department of Labor. United States city average and 10 cities—August 1958 (1947–49 = 100).

American Consumers' Assets

Although many of us are gloomily aware of our rapid approach to a $300,000,000,000 Federal debt, some consolation can be derived from the following tally of American consumers' assets at the end of 1957:

1. $280,000,000,000 in individual holdings of corporate securities.
2. $169,200,000,000 in currency and cash deposits.
3. $91,900,000,000 in securities.
4. $41,600,000,000 in savings and loan association deposits.
5. $18,100,000,000 in insurance and pension funds.

All these assets can be readily turned into cash if needed.

Federal and State Actions

FDA ACTIONS

Illegal Over-the-Counter Sales for the Month of September

George E. Fakehany, M.D., David E. Pearl, D.O., Raymond M. Braddock, D.O., Los Angeles, Calif.—Selling amphetamine and barbiturates not in the course of professional practice and repacking and labeling of these drugs without caution legend prior to dispensing. Fakehany fined $2,000 which was suspended; Baddock fined $500 which was suspended; Braddock and Pearl both placed on probation for 1 year.

James Drug Shop, Inc., Jeanne Louise Scheibler, pres., Warren D. Morrison, Miami, Fla.—Selling and refilling prescriptions for barbiturates and hormones. Firm fined $600; Scheibler and Morrison each placed on probation for 2 years. (Terminated in August but not previously reported.)

O. Kenneth Chicon, t/a Ken's Prescription Pharmacy, Washington, Ind.—Selling hormones and barbiturates without physicians' prescriptions. Fined $800 plus $50.40 costs.

Nelson's Pharmacy Inc., Hyman Levy, pharm., mgr., Lynn, Mass.—Refilling prescriptions for barbiturates, sulfonamides, and tranquilizers without physicians' authorizations. Firm fined $500; Levy fined $250; 2-year jail sentence suspended and placed on probation for 3 years.

Alfred L. Walsh (Knobbys Cafe and Oil Station), Douglas County, Nebr.—Selling amphetamine without physicians' prescriptions. Placed on probation for 1 year.

Albert L. Spediacci, t/a Spediacci's Mohawk Pharmacy, Amsterdam, N.Y.—Selling amphetamine and Ansolysen without physicians' prescriptions. Fined $1,000.

David Weisenberg, t/a Liberty Cut Rate Drug Company, Fred S. Levine, clerk, Cleveland, Ohio—Selling antibiotics and amphetamine without physicians' prescriptions. Weisenberg fined $1,400; Levine fined $200.

Acres Home Drug Store, Dan L. Lasky, ptnr., Houston, Tex.—Selling antibiotics and sulfonamides without physicians' prescriptions. Firm and Lasky each fined $200.

Oran W. Mobley, t/a Mobley's Clark Street Drug, Houston, Tex.—Selling antibiotics, hormones, sulfonamides, and prednisone without physicians' prescriptions. Fined $350.

Labeling of Drug Preparations Containing Salicylates

The following statments of general policy or interpretation have been published over the signature of George P. Larrick, Commissioner of Foods and Drugs:

a. The label of any oral drug preparation intended for sale without prescription and which contains any salicylate ingredient (including aspirin, salicylamide, other salicylates, and combinations) must bear a conspicuous warning statement such as: "Warning: Keep out of the reach of children," or "Warning: Keep this and all medications out of the reach of children." Such a warning statement is required for compliance with section 502 (f) (2) of the Federal Food, Drug, and Cosmetic Act and is intended to guard against accidental poisonings. Safety closures that prevent access to the drug by young children are also recommended to guard against accidental poisonings.

b. Effervescent preparations and preparations containing para-aminosalicylate as the only salicylate ingredient are exempted from this labeling requirement.

c. Aspirin tablets sold as such and containing no other active ingredients, except enteric-coated tablets which cannot be subdivided to a child's dose, should always bear dosage directions for each age group down to 3 years of age, with a statement such as "For children under 3 years of age, consult your physician." It is recommended that aspirin tablets specially made for pediatric use be produced only in $1\frac{1}{4}$-grain size to reduce the hazard of errors in dosage.

d. Salicylate preparations other than aspirin tablets sold as such may, at the option of the distributor, be labeled for use by adults only, if their labeling and advertising clearly offer them for administration to adults only.

e. (1) It is the obligation of the distributor who labels a salicylate preparation for administration to children to make certain that the article is suitable for such use and labeled with adequate directions for use in the age group for which it is offered, but in no case should such an article bear directions for use in children under 3 years of age. If the directions provide for administration to children as young as 3 years of age, the label should bear the statement, "For children under 3 years of age, consult your physician." However, if the directions provide for administration to children only of an age greater than 3 years (for example, the dosage instructions provide for an administration of the article to children only down to age 6), the label should bear a statement such as, "For younger children, consult your physician."

Continued on page 684

Communicable Diseases Summary

THE number of cases of the communicable diseases shown in the table below are based on reports by Health Officers of each State and of Alaska, Hawaii, and Puerto Rico to the National Office of Vital Statistics of the Department of Health, Education, and Welfare, Washington, D.C. The number of cases of each disease occurring during each of the last 4 weeks are reported and also cumulative totals to date for 1958 and for the corresponding period of 1957, as well as the 1953–1957 median for this same period. The approximate seasonal low point for each of the diseases is shown in the last column.

Communicable Disease	Cases Reported for Week Ending				Cumulative Number			Low Point (Approximate Seasonal)
Selected Notifiable Disease	*Sept. 20, 1958*[a]	*Sept. 27, 1958*[d]	*Oct. 4, 1958*[g]	*Oct. 11, 1958*[g]	*First 41 Weeks 1958*[g]	*1957*	*Median 1953–57*	
Anthrax	1[b]	–	–	–	12	16	22	[i]
Botulism	–	–	–	–	3	11	8	[i]
Brucellosis	16	11	19	16	645	782	1,045	[i]
Diphtheria	28	14	39	12	546	775	1,228	July 1
Encephalitis, infectious	116	70	65	55	1,815[i]	1,486	1,486	June 1
Hepatitis, infectious and serum	243	272	318	260	12,262	12,393	25,547	Sept. 1
Malaria	1	–	1	2	56	129	395	[i]
Measles	1,102	1,047	1,208	1,533	717,717	455,204	530,745	Sept. 1
Meningococcal infections	65	37	52	43	2,079[j]	1,917	2,847	Sept. 1
Meningitis, other	115[c]	149[e]	199[f]	80[h]	3,199[k]	1,898	– – –	– – –
Poliomyelitis	434	386	315	311	4,376	5,212	24,197	Apr. 1
Paralytic	220	179	133	152	2,098	1,765	– – –	Apr. 1
Nonparalytic	141	162	122	116	1,637	2,619	– – –	Apr. 1
Unspecified	73	45	60	43	641	828	– – –	Apr. 1
Psittacosis	–	4	2	3	120	206	210	[i]
Rabies in man	–	–	–	–	2	4	6	[i]
Typhoid fever	33	30	37	22	843	1,085	1,495	Apr. 1
Typhus fever, endemic	–	4	–	2	63	101	111	Apr. 1

[a] Data exclude report from Idaho for the current week. [b] Reported in Miss. [c] Includes 19 cases of aseptic meningitis: 4 in D.C., 10 in Fla., 4 in Md., and 1 in Wisc. [d] Data exclude report from Idaho for the current week. [e] Includes 75 cases of aseptic meningitis: 60 in Cal., 8 in Fla., and 7 in Ia. [f] Includes 120 cases of aseptic meningitis: 68 in Cal., 3 in D.C., 7 in Fla., 1 in Ia., 7 in Md., and 34 in Wyo. [g] Data exclude reports from Ga. and La. for the current week; the report from Cal. is incomplete. [h] Includes 28 cases of aseptic meningitis: 13 in Cal., 7 in Fla., 2 in Md., and 6 in Wisc. [i] Includes revised report from Colo. for week ended Sept. 27. [j] Includes revised report from Mich. for week ended Sept. 20. [k] Includes revised report from N.Y. for week ended Sept. 27. [l] Data show no pronounced seasonal change in incidence. Symbols: 1 dash(–): no cases reported; 3 dashes (– – –): data not available.

(2) A statement such as "For children under 3 years of age, consult your physician" or "For younger children consult your physician," is not required on the label of an article clearly offered for administration to adults only.

f. If the labeling or advertising of a salicylate preparation offers it for use in arthritis or rheumatism, the label and labeling should clearly state that the beneficial effects claimed are limited to: "For the temporary relief of minor aches and pains of arthritis and rheumatism." The qualifying phrase "for the temporary relief of minor aches and pains" should appear with the same degree of prominence and conspicuousness as the phrase "arthritis and rheumatism." The label and labeling should bear in juxtaposition with such directions for use conspicuous warning statements to the effect: "Caution: If pain persists for more than 10 days or redness is present, or in conditions affecting children under 12 years of age, consult a physician immediately." The salicylate dosage should not exceed 60 grains in a 24-hour period or 10 grains in a 4-hour period. If the article contains other analgesics, the salicylate dosage should be appropriately reduced.

g. (1) The label of any drug containing more than 5 percent methyl salicylate (wintergreen oil) should bear a conspicuous warning such as : "Warning: Do not use otherwise than as directed. Keep out of the reach of children to avoid accidental poisoning."

(2) If the preparation is a counter-irritant or rubefacient it should also bear a caution such as "Caution: Discontinue use if excessive irritation of the skin develops. Avoid getting into the eyes or on mucous membranes."

FTC ACTIONS

The Federal Trade Commission has sharply stepped up its actions against deceptive business practices, principally false advertising. During fiscal 1958, a total of 270 complaints were issued, up from 187 the previous year and nearly double the 150 complaints issued in fiscal 1956. According to Harry A. Babcock, Executive Director of the FTC, the staff has been working harder and more efficiently to set the fast pace even though the number of employees is roughly about the same (735) and the increase in appropriations was only $50,000. The major areas of activity are in fictitious price advertising and misleading advertising. In recent months the FTC has challenged the alleged false advertising claims made by the following companies:

Allegheny Pharmaceutical Corporation, New York City, and its officials, Harry Evans and Vincent J. Lynch (Hungrex with PPA).

Practical Research Company and **Practical Research K-12 Company,** Newark, New Jersey, and Joseph J. Pincus (K-12).

Anderson Pharmaceutical Corporation, New York City, and Harry Evans and Anthony D'Angelo (Du-Dol).

Drug Research Corporation, New York City, and John, Timoleon T., and Harriet Andre, also known by the surname Andreadis, and the company's advertising agency, Kastor, Farrell, Chesley & Clifford, Inc. (Regimen Tablets).

Misrepresentations by the above companies included claims for weight losses by their weight reducers.

Qualitone Hearing Aid Company, Minneapolis Minnesota—The FTC approved a consent order prohibiting the company from misrepresenting that its "Stereophonic Optical Ear" and "Hidden Ear" hearing aids are cordless, invisible, and require nothing in the ear.

The following companies have been ordered to stop claiming that the hair preparations they manufacture will prevent or cure baldness of the male pattern type:

Ward Laboratories, Inc., Comate Laboratories, Inc., and **Sebacin, Inc.,** New York City (Ward's Formula Medicine for the Scalp and Hair, Comate Medicinal Scalp Formula, and Sebacin Basic Formula).

Other firms against which some action has been taken by the FTC include Adell Chemical Company, Incorporated, Wybrant System Products Corporation, Helene Curtis Industries, Incorporated, Mentholatum Company, Incorporated, Omega Chemical Company, Incorporated, American Home Products Corporation, Revlon, Incorporated, Helene Rubenstein, Incorporated, and American Chicle Company. The following actions are very interesting:

Sunway Vitamin Company, Chicago, Illinois—The FTC has affirmed a consent order prohibiting this company from misrepresenting the effectiveness of Super Sunway Vitamin Tablets with Iron in supplying pep and more red blood and in relieving nervousness and restlessness.

Union Pharmaceutical Company, Bloomfield, New Jersey—The FTC has charged that this company misrepresented on television and by other means that the laxative Saraka rejuvenates inactive, lazy intestinal muscles.

Timed Energy, New York City—The FTC has approved a consent order requiring the company to stop falsely claiming that the vitamin and mineral preparation Vita-Timed Capsules is a safeguard against arthritis, diabetes, gastrointestinal disorders, high blood pressure, pernicious anemia, or heart trouble.

Johnson and Johnson—Hess Brothers have agreed to maintain fair trade prices on the products manufactured and sold by Personal Products Corporation in a settlement approved by United States District Court Judge Allan K. Grim. The products include Modess, Meds, Serena, Coets, and Jonny Mop.

Liggett & Myers—The Federal Trade Commission has ordered that Liggett & Myers Tobacco Company, a corporation, and its officers, agents, representatives, and employees, directly or through any corporate or other device, in connection with the offering for sale, or distribution in commerce, as "commerce" is defined in the Federal Trade Commission Act, of Chesterfield cigarettes, or any other cigarettes of substantially similar composition, do forthwith cease and desist from representing directly or by implication:

1. That such cigarettes or the smoke therefrom will have no adverse effect upon the nose, throat, or accessory organs.
2. That such cigarettes or the smoke therefrom is milder when used to connote that the smoke therefrom is less irritating than the cigarettes or the smoke of any other brands of cigarettes.
3. That such cigarettes or the smoke therefrom will soothe or relax the nerves.

Eli Lilly and Company—A permanent injunction has been obtained by the company against Bennett Pharmacy, Inc., New York City, restraining the defendant from advertising or selling Lilly products below minimum Fair Trade prices. The products involved included Homicebrin, Trinsicon, and Protamine, Zinc & Illetin.

Parke, Davis & Company—Circuit Judge Thomas M. Anderson handed down an opinion upholding Parke-Davis' request for a permanent injunction to restrain Dart Drug Corporation from selling P-D products at below Fair Trade prices in its Silver Spring retail pharmacy. Court costs were paid by the defendant.

OTHER ACTIONS

Minimum Wage

"The minimum wage for persons employed in the manufacture or furnishing products of the drugs and medicines industry, under contract subject to the Walsh-Healey Public Contracts Act, shall be not less than $1.20 per hour, arrived at either on the time or piecerate basis," according to a notice appearing in *The Federal Register*, **23,** 5875 (August 2, 1958), and signed by Secretary of Labor James P. Mitchell.

Only two exceptions were received by the Department of Labor. The American Federation of Labor and Congress of Industrial Organizations contended that the proposed rate is too low. The Philadelphia Ampoule Laboratories contended that the rate is too high. Both contentions were overruled.

Members

The Association Extends a Cordial Welcome to the Following Men and Women Who Were Accepted for Active Membership During the Month Preceeding Preparation of This Issue.

ALABAMA
Gardiner, Leland M., Jr., Huntsville

ARIZONA
Bohannon, Conrad A., Phoenix

ARKANSAS
Shehane, Harvey B., El Dorado

CALIFORNIA
Brown, Edmund, Anaheim
Cole, Roger O., North Hollywood
Fortier, George J., Carmel
Johnson, Eugene G., Pasadena
McQuarrie, Duncan P., Menlo Park
Neumen, Joseph R., San Bernardino
Ogomori, Wilfred T., Los Angeles
Reinhaus, Stanley M., Jr., Santa Ana
Shaw, Jack V., El Monte
Van Amburgh, Joe K., San Diego
Yamamoto, Masaaki, Los Angeles

CONNECTICUT
Gard, Seymour, Bristol
Sabia, Dominick A., Stamford

FLORIDA
Gonzalez, Edward M., Jr., Tampa
Leger, Edmond J., Miami
Malewitz, Thomas D., Gainesville
Miley, Ralph K., Tampa
Seaney, H. Kent, Fort Lauderdale
Spera, John T., Tampa

GEORGIA
Owen, Ellis R., Dalton
Tassopoulos, Harry, Atlanta

ILLINOIS
Barlow, Truman A., Olney
Center, Robert G., Highland
Cohn, Jack, Chicago
Dillard, Cecil R., Chicago
Edelson, Lowell J., Chicago
Evans, Otto J., Riverdale
Garcia, Josefina A., Anna
Hatter, Harold T., Clarendon Hills
Kooistra, Louis W., Park Forest
Osmolak, Edwark J., Cicero
Stillwell, Robert T., Downers Grove

INDIANA
Harris, Don V., Bluffton
Koch, R. M., Evansville
McQuinn, Clarence L., Russiaville
Meinzen, Alfred M., Fort Wayne
Minch, Raymond C., Portland

IOWA
Drebenstedt, Art A., Burlington
Forker, Hubert M., Des Moines
Hornbostel, Francis J., Des Moines
Thudium, Vern F., Iowa City

KANSAS
Berg, Carl F., Emporia
Bernardy, John J., El Dorado

KENTUCKY
McAfee, Frederick L., Berea
McKnight, Bill W., Whitesburg
Rosenberg, Arnold J., Louisville
Rosenberg, Charles F., Louisville

LOUISIANA
Bienvenu, Robert G., St. Martinville
Bull, Charles L., Welsh
Nevils, Milton M., Baton Rouge
Segura, Jacob S., Mansfield

MAINE
LaVerdiere, Evariste, Fairfield

MARYLAND
Karlin, David, Baltimore
Shangraw, Ralph F., Baltimore
Shapiro, Lionel, Baltimore

MASSACHUSETTS
Norris, Joseph A., New Bedford
Rosen, William M., Belmont
Tura, Francis V., Kingston

MICHIGAN
Decker, Joseph C., Ann Arbor
Farner, Eugene M., Jr., Linden
Oleszkowicz, Ben A., Detroit
Schultz, Dale F., Saginaw

MISSISSIPPI
Allen, Billups H., Starkville
White, Page V., Batesville

MISSOURI
Heisterberg, Edward J., Creve Coeur
Merryfield, William A., Windsor
Sissin, Raymond J., St. Louis

MONTANA
Naegeli, Allegra, Basin
Zimmerman, Jack T., Missoula

NEBRASKA
Schreiner, J. R., Plattsmouth

NEW HAMPSHIRE
Gonyer, Louis X., Manchester

NEW JERSEY
Adams, Elizabeth C., Phillipsburg
Brenner, Marleen D., Ventnor
Evans, Charles W., Hamilton Square
Lubman, Seymour A., Livingston
Zaremba, John A., Maywood

NEW YORK
Ellis, Seward T., Candor
Griffin, Raymond P., Eggertsville
Kimber, George H., Greene
Litchtenstein, Myron W., New York
Lubick, Ralph, Buffalo
Parisi, Charles C., Buffalo
Randall, Henry W., New Hartford
Shucard, Morris, Brooklyn
Sunshine, Gary A., Buffalo
Zagame, Victor J. T., Woodhaven

NORTH CAROLINA
Miller, Robert E., Elizabeth City
Smith, Douglas S., Greensboro

NORTH DAKOTA
McElmury, Richard E., Hazen

OHIO
Apesos, Christopher, Warren
Kelley, W. Carl, Dayton
Klaiber, Ken, Cincinnati
Mains, Robert, Cuyahoga Falls
Perlman, Donald, Lyndhurst
Richmond, Alexander, Toledo
Uhlfelder, David R., Cincinnati
Wright, Lewis F. Jr., Cleveland

OKLAHOMA
Meece, Jerry J., Oklahoma City

OREGON
Cattanack, Arlen L., Grant's Pass
Gerding, George R., Portland
James, Guinn R., Coos Bay

PENNSYLVANIA
Domain, Dorothy M., Pittsburgh
Falchek, Frank C., Plains
Gildiner, Sydney, Philadelphia
Ludwig, Alfred L., Jr., Philadelphia
Miller, Edward C., Bryn Mawr
Mologne, Stuart J., Smithton
Stout, Richard J., Philadelphia
Strauchler, Harry, Pittsburgh
West, Henry E., Pittsburgh

RHODE ISLAND
D'Angelo, Philip, Wallum Lake

TENNESSEE
Hisky, John M., Memphis
Stewart, H. Nestor, McMinnville

TEXAS
Neace, B. D., Monahans
Okies, Joe, El Paso

UTAH
Ensign, Richard H., Ogden
Erickson, Robert E., Salt Lake City
Evans, Gene, Provo

VIRGINIA
Harder, Albert, Bassett
Stone, Robert L., Suffolk

WASHINGTON
Benedict, A. Kenneth, Seattle
Fyfe, Joseph S., Tacoma
Holen, Lola M., Yakima
Levin, Meyer, Seattle

WEST VIRGINIA
Raymond, Dominic J., Clarksburg

WISCONSIN
Kannass, David, Milwaukee
Kesselman, William, Milwaukee
McAllister, F. A., West Allis
VanDerKelen, Edwin W., Oshkosh

ALASKA
Burston, A. W., Anchorage

INTERNATIONAL
Saenz, Liliam, Managua, Nicaragua, C. A.

Deceased

Hernandez y Cartaya, Julio, Havana, Cuba (Life Member)
Nicassio, Victor, Oklahoma City, Okla., Jan. 26, 1958
Shanks, Joe, Centerville, Iowa, July 11, 1958
Thompson, Bernard W., Rockford, Ill., Feb. 4, 1958
Walchok, Jack, Milwaukee, Wis., Aug. 15, 1958

Obituaries

Charles J. Lynn, 84, passed away September 22 at his home in Indianapolis, Ind. A Vice President and member of the Board of Eli Lilly and Company, Mr. Lynn was associated with the firm for 63 years. He helped to build Lilly from a small domestic concern to a world-wide organization. A life member of APhA, which he joined in 1906, Mr. Lynn was also a member of the Board of Grants of the American Foundation for Pharmaceutical Education. His wide range of interests led to affiliations with many diverse groups.

Edward Hulbert Niles, 76, Dean Emeritus of the Butler University College of Pharmacy, died September 23 at St. Vincent's Hospital in Indianapolis, Ind. A graduate of the Indianapolis College of Pharmacy, Dr. Niles was Dean of Pharmacy at Butler from 1945 to 1952. He was a life member of the APhA, which he joined in 1914. He also held membership in numerous other scientific and social organizations.

division of

Prescription Practice

by Samuel W. Goldstein

℞ Information Service

Bithionol (Actamer) Soap

Have you heard of a liquid germicidal soap containing bithionol?—G. C., Indiana.

A soap containing bithionol 1:1,000 in a 5% castor oil base is available as Lorothidol (Hilton-Davis). A report on the formulation and manufacture of a liquid germicidal detergent is given by S. H. Hopper and K. M. Wood, *J. Am. Pharm. Assoc., Sci. Ed.*, **47,** 317 (May 1958). The formula for the preparation of 10 gallons is: bithionol (Actamer, Monsanto), 1140 Gm.; sodium hydroxide, 378 Gm.; mixed surfactant LD-44(Stepan Chemical Co.), 19,000 cc.; perfume oil No. 11420 (Fritzsche Bros.), 50 cc.; and distilled water to make 38,000 cc.

Dosulfin

We have a request for Dosulfin. What is it and who makes it?—P. L., Washington, D.C.

Dosulfin is a combination of sulfamerazine and sulfaproxyline in equal parts, marketed in 0.75-Gm. tablets by Geigy Pharmaceutical Co. Ltd., in England. The tablets and a 10% syrup are marketed by Geigy Corp., Basel. The new ingredient, sulfaproxyline, chemically N^1-(*p*-isopropoxylbenzoyl)-*p*-aminobenzenesulfonamide, is a Geigy product. The combination of sulfas is freely soluble, rapidly absorbed, and produces high levels in the blood stream with a small dose [*Brit. Med. J., 5084,* 1413(June 14, 1958)]. It is stated to be useful in pneumonia and otitis media [*Unlisted Drugs,* **10,** 67a(July 1958)].

Fluoride Toothpaste

A dentist requested a toothpaste containing fluoride. Can you give us a formula?—B. Y., Maryland.

We assume that you and the dentist are aware of commercially available toothpastes containing fluoride and, therefore, that you are interested in a different formulation. A recent patent (No. 2,839,448) by Hager and Reiss (to Procter & Gamble) described the following formulation: stannous fluoride 0.4%, calcium pyrophosphate 42%, glycerin 25%, sodium carboxymethylcellulose 0.8–1.5%, sufficient water, plus sudsing, flavoring, and sweetening agents. This type of product should be thoroughly tested, before use, for stability and incompatibilities between ingredients, containers, closures, etc.

Magnesium Aluminum Hydroxide

Can you help us find a chemical called Magnesium Aluminum Hydroxide Powder?—W. F. B., Canada.

We can find no listing of a chemical substance named magnesium aluminum hydroxide powder. The material is probably a physical mixture of the two hydroxides in the proportions desired by the formulator, or it could be a dried mixture of co-precipitated and washed or dialyzed hydroxides obtained from a solution of soluble magnesium and aluminum salts treated to produce a mixed magma. The product marketed as Aluminum-Magnesium Co-precipitated Gel (Reheis Co.) is a co-precipitated dried gel of $Al(OH)_3$-$Mg\ CO_3$.

Mouth Wash

How can we improve the mouthwash Tyrolaris to make it more astringent, a cleanser, and have local anesthetic action? We get incompatibilities with basic substances, metal salts, tannic acid, and benzocaine.—F. E. A., Wisconsin.

We are certain that the excellent research group at Merck Sharp and Dohme tried many variations of their formula before deciding that the form in which Tyrolaris is marketed is just about as good as it can be. If you have any suggestions for improving Tyrolaris, the manufacturers' staff would be in a position to know whether incompatibilities might result, because they know all the ingredients (including stabilizers) in the product.

Paraoxybenzoate de Methyl Sodium

A foreign prescription included the compound paraoxybenzoate de methyl sodium. What is it and how can we obtain it?—J. D., Washington, D.C.

Paraoxybenzoate de methyl is the French form for methyl parahydroxybenzoate or methylparaben. The sodium derivative of this preservative antifungal agent is much more soluble in water. It is probably not available as such, but is prepared readily by addition of the equivalent amount of sodium hydroxide solution to the methylparaben before incorporation into the formulation.

Nivemycin

We have a prescription for Nivemycin. Where can we get it?—P. D., Washington, D.C.

Nivemycin is the trade name for neomycin (Boots Pure Drug Co. Ltd., England). Neomycin sulfate is available in the U.S. as Mycifradin sulfate (Upjohn), and in dosage forms from various manufacturers.

Thorium X

Please give us information about a product named Thorium X.—C. N. D., Nebraska.

A report on "Thorium X in Dermatology" by J. van de Erve, *Southern Med. J.*, **46,** 155(1953), states: Thorium X is a member of the thorium disintegration series and an isotope of radium. It is used in dermatology in the treatment of very superficial conditions where irradiation is indicated. This element is naturally radioactive, emitting alpha particles which are active to a depth of about 80 microns; the half-life of the element is 3.65 days. Thorium X may be applied in isopropyl alcohol solution containing 150 microcuries per cc., or in an ointment containing 75 microcuries per Gm.

Unemul—Alumina Gel

One of your formulas for an ophthalmic suspension (THIS JOURNAL, *April 1957*) *included Unemul as an ingredient. Is it available in the U.S.?—R. E. B., Washington.*

Unemul, a product of Universal Emulsions Ltd., Kent, England, is described as a gelatinous hydrated aluminum oxide with average particle size 3–7 microns. This product is not included in the latest edition (24th) of "The Extra Pharmacopoeia (Martindale)," 1958, and it is probably a specialty that is prepared on order. A similar product might be obtained by passing an unflavored and suitably preserved aluminum hydroxide gel through a sterile colloid mill set at the desired particle size range. A product meeting indicated specifications could be obtained from pharmaceutical formulation producers, such as: Strong, Cobb & Co., 2654 Lisbon Rd., Cleveland 4, Ohio; and the Arner Company, 308 Michigan Ave., Buffalo 3, N.Y.

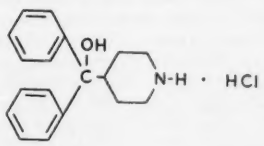
Prescription Practice

New and Nonofficial Drugs

Items Recently Evaluated by the American Medical Association Council on Drugs.

Azacyclonol Hydrochloride

Frenquel (Merrell); α,α-Diphenyl-4-piperidinemethanol HCl.—α-(4-Piperidyl)benzhydrol HCl.



Actions and Uses: Azacyclonol HCl, a diphenylmethane, is a structural isomer of pipradrol HCl, differing only with respect to the point of attachment of the piperidine ring to the methanol carbon atom. This subtle change in chemical configuration is responsible for modifying its pharmacological action; pipradrol produces overt supramedullary stimulation, whereas azacyclonol appears to reduce certain types of cerebral stimuli. The drug cannot qualify as a typical central nervous system depressant in man, however, since it does not produce any appreciable sedative or hypnotic effects even in large doses. Meager evidence for a mild depressant effect in animals is noted by the ability of azacyclonol partially to antagonize the stimulant effects of its isomer pipradrol and to prolong the sleeping time, produced by use of hexobarbital, in mice. Neither action has been confirmed in man.

The principal experimental basis in man for the present claims that azacyclonol HCl is an antihallucinatory agent stems from experiments reported to demonstrate an antagonistic effect against the confusion and auditory and visual hallucinations induced in human volunteers by mescaline and lysergic acid diethylamide (LSD 25). Subsequent studies attempting to confirm these observations have been unsuccessful.

The clinical trials stemming from these experiments were initiated because of a postulated relationship between drug-induced hallucinations and those associated with natural disorders, a hypothesis which remains to be proved. Results of clinical trials with azacyclonol in patients with hallucinations and confusion have been highly variable. Some investigators report decidedly beneficial results in some, but not all, patients; other workers find the drug entirely without value. On the basis of the more favorable reports, it would appear that azacyclonol is most likely to be useful in acute schizophrenia and toxic states; it has been of less value in chronic schizophrenia and has no place in the treatment of psychotic depressive states, obsessive-compulsive disorders, or anxiety reactions. In general, most of the earlier favorable reports are based on studies over relatively brief periods of observation and are largely uncontrolled. More recent observations in chronic schizophrenia suggest that with longer duration of therapy (4 to 6 weeks), in which oral doses of 100 mg. per day are used, a larger number of favorable responses may be obtained than with placebo controls in reducing the incidence of hallucinations, delusions, assaultiveness, agitation, and seclusiveness.

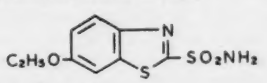
On the basis of both laboratory studies and clinical experience, the toxicity of azacyclonol HCl seems to be negligible. Even in very large doses, both intravenous and oral, the drug has not produced any serious untoward reactions or side-effects. Rarely, a maculopapular skin rash has been observed which is reversible upon discontinuation of therapy.

Dosage: Azacyclonol HCl is administered orally or intravenously. There is no unanimity regarding the effective dosage Hence, proposed oral dosage of the treatment of acute schizophrenic hallucinosis varies from as little as 20 mg. to as much as 100 mg. three times daily. For schizophrenic patients in whom oral medication is not feasible, 100 mg. of the drug is suggested by direct intravenous injection or slow intravenous drip. For the treatment of toxic psychoses, such as postoperative confusion or delirium tremens, the proposed intravenous dose is 100 mg. every eight hours for one to seven days. Until more evidence can be accumulated to support the therapeutic value of the drug, the foregoing proposed dosages should be considered experimental.

Preparations: tablets 20 mg. and 100 mg.; solution (injection) 20 mg. in 1 cc.

Ethoxzolamide

Cardrase (Upjohn); 6-Ethoxy-2-benzothiazolesulfonamide.



Actions and Uses. Ethoxzolamide is a diuretic agent with actions and uses similar to those of the chemically related sulfonamide compound, acetazolamide. Both drugs are potent inhibitors of carbonic anhydrase and are believed to influence fluid mobilization by the same basic mechanism of action. Therapy with either results in alkalinization of the urine and a mild degree of metabolic acidosis. Available evidence indicates that the initiation of diuresis may be achieved with smaller doses of ethoxzolamide than of acetazolamide. On a weight basis, ethoxzolamide appears to be approximately twice as active as acetazolamide. Both have approximately the same duration of action, the effects lasting about 8 to 12 hours after a single oral dose.

Ethoxzolamide is used to produce diuresis in patients with mild to moderate congestive heart failure. It may also be used in conjunction with mercurial diuretic agents for the treatment of the more severe forms of heart failure. Such combination therapy may permit a reduction in the dosage and frequency of mercurial administration; in certain cases, it may even be possible to eliminate the need for the mercurial diuretic.

Ethoxzolamide decreases intraocular pressure by inhibiting the formation of aqueous humor. It is, therefore, useful in the treatment of glaucoma, particularly acute glaucoma. The drug is usually not employed alone but is given concomitantly with cholinergic miotics because such therapy appears to be additive. The long-term effectiveness of carbonic anhydrase inhibitors remains to be established.

Ethoxzolamide has been employed to reduce the incidence of convulsive attacks in epileptic patients subject to grand mal and petit mal seizures. Although beneficial effects have been reported in certain cases, there is insufficient evidence to establish the usefulness of the drug as an antiepileptic agent.

In general, ethoxzolamide appears to be well tolerated. The most commonly reported side-effects include nausea, dizziness, and numbness and paresthesias of the fingers and toes or at the mucocutaneous junctions of the lips or anus. Other less frequently reported reactions include drowsiness, fatigue, headache, and dryness of the mouth. Long-term therapy, such as is employed in chronic glaucoma, may lead to anorexia and weight loss. Side-effects generally subside or disappear with a reduction in dosage.

Ethoxzolamide should be used cautiously in patients with hepatic cirrhosis, since it may induce episodes of disorientation. The drug is contraindicated in patients with renal failure, hyperchloremic acidosis, Addison's disease, and in any condition in which sodium and/or potassium levels are depressed.

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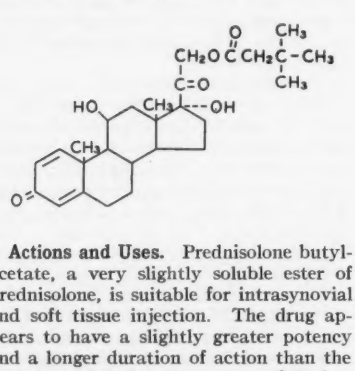
Dosage. Ethoxzolamide is administered orally. For diuresis in mild to moderate congestive heart failure or in combination with mercurial diuretics in severe heart failure, a single dose of 62.5 to 125 mg. is given in the morning after breakfast for three consecutive days of each week; this dose may also be given on alternate days. In resistant cases, single doses of as much as 250 mg. may be required. For use in glaucoma, the dosage ranges from 62.5 to 250 mg. two to four times daily, depending upon the individual response in intraocular pressure. As is true for acetazolamide, the administration of ethoxzolamide should be intermittent rather than continuous. Dosage for the prophylaxis of epileptic seizures is not established, but daily amounts up to 750 mg. have been employed.

Preparations: tablets 125 mg.

Prednisolone Butylacetate

Hydeltra-T.B.A. (Merck S & D); Prednisolone *tert*-butylacetate.—$\Delta^{1,4}$-Pregnadiene-3,20-dione-11β,17α-21-triol *tert*-butylacetate.



Actions and Uses. Prednisolone butylacetate, a very slightly soluble ester of prednisolone, is suitable for intrasynovial and soft tissue injection. The drug appears to have a slightly greater potency and a longer duration of action than the acetate or butylacetate esters of hydrocortisone. It is useful for the treatment of those painful disorders of the joints, tendons, and bursae which are usually responsive to local glucocorticoid therapy (injection). Since the drug is so slightly soluble, 24 to 48 hours may elapse after injection before relief of symptoms becomes significant. The duration of relief varies from patient to patient but averages from two to three weeks. A continuation or even an increase in local discomfort (postinjection flare) may occur and be present for several hours after the administration of prednisolone butylacetate; however, this is usually followed by effective relief of pain and improvement in local function. Systemic steroid effects are not a problem when therapeutic doses are employed; with higher dosage, mild transient subjective improvement of joints remote from those injected has been reported. (See the general statement on glucocorticoids in NND.)

Dosage. Prednisolone butylacetate is administered by intrasynovial or soft tissue injection only; it should not be given by any other route. The usual techniques governing intrasynovial (intraarticular and intrabursal) injection should be observed, and a 22-gauge or larger needle should be employed. The injection site may be infiltrated with a local anesthetic if necessary. Dosage and interval between injections depend on size of joint, degree of inflammation, and individual response of the patient. For large joints such as the knee, the usual dose is 20 to 30 mg.; in smaller joints, 7.5 to 10 mg. may be sufficient. A dose of 20 to 30 mg. is usually employed for the treatment of most forms of bursitis. The suggested dose for inflammatory conditions of the tendons is 4 to 10 mg. For the treatment of ganglion, 10 to 20 mg. is injected directly into the cyst cavity.

Preparations: suspension (injection) 20 mg. in 1 cc. and 100 mg. in 5 cc.

Protamine Sulfate, N. F.

The sulfate salt of a strongly basic substance which is protein-like in nature and which is derived from the sperm of the salmon and other species of fish. Protamine is essentially a large polypeptide which, on hydrolysis, yields arginine or arginine in combination with histidine, lysine, or both.

Actions and Uses: Protamine sulfate is a heparin antagonist. Paradoxically, the drug itself is an anticoagulant and will cause a prolongation of the clotting time. Although not nearly as active as heparin, protamine may be considered a true antithromboplastin. However, when protamine is given in the presence of heparin, the attraction of the two substances for each other is much greater than their individual attraction to the blood elements. Thus, in a sense, each neutralizes the anticoagulant activity of the other. The quantitative relationship of this interaction, which proceeds both *in vitro* and *in vivo*, is that of approximate direct ratios; i.e., about 1 mg. of protamine is required to overcome the anticoagulant effect of 1 mg. of heparin. When given intravenously to a heparinized patient, protamine appears to act almost instantaneously, and its effects persist for about two hours.

Protamine sulfate is well established as an effective agent for combating the bleeding tendency that results from overdosage of heparin. Its intravenous administration results in rapid control of heparin-induced hemorrhage and, if given in sufficient dosage, a restoration of clotting time to normal. The availability of protamine sulfate is therefore essential for the safe management of patients undergoing anticoagulant therapy with heparin.

Protamine has also been used for the treatment of certain nonspecific hemorrhagic states which are believed to be characterized, in part, by increased amounts of heparin or heparin-like substances in the circulation. The rationale for such therapy is based upon the observation that the blood of certain patients, notably those with menorrhagia, postpartum hemorrhage, or postirradiation hemorrhagic diathesis, shows an increased protamine titration. This test is one in which identical aliquots of heparinized blood are added to increasing concentrations of protamine, the end-point being the amount of protamine required for clot formation. Some patients in this diagnostic category have shown decided improvement after the administration of protamine, but there is insufficient evidence at present to prove conclusively that the cessation of hemorrhage in these conditions can be attributed to the action of the drug. Thus, the use of protamine in the treatment of acquired hemorrhagic diseases is considered experimental.

In clinical use, protamine sulfate appears to be well tolerated, and large intravenous doses (up to 200 mg. in two hours) have been administered without any untoward effects. Since it is the additive used in the preparation of protamine zinc insulin, protamine has often been suggested as the causative agent in the hypersensitivity reactions that sometimes occur in diabetic patients receiving that form of insulin. However, experiments have demonstrated that such reactions are due to sensitivity to the insulin rather than to the protamine, and it appears doubtful that allergy to protamine exists to any significant degree.

Dosage: Protamine sulfate is administered intravenously and, occasionally, intramuscularly. For the treatment of heparin overdosage, a 1% solution is injected slowly (in one to three minutes) by the intravenous route. Since heparin is counteracted approximately mg. for mg., the total dosage of protamine can be determined from the amount of heparin given over the previous three to four hours. The dosage should not exceed 50 mg. of protamine at any one time.

In the treatment of spontaneous hemorrhagic disorders, the proposed total daily dosage is 5 to 8 mg. per Kg. of body weight, injected in two equal portions six hours apart; the calculated dose is diluted in 300 to 500cc. of isotonic sodium chloride solution and slowly infused intravenously. Therapy should not be continued for longer than three days.

Protamine sulfate has been administered intramuscularly for the treatment of uncomplicated bleeding states in which elevated protamine titration levels exist. The proposed dosage is 50 mg. every four hours for postpartum hemorrhage; for menorrhagia, the proposed intramuscular dose is 50 to 100 mg. on the second day of the menstrual period. The proposed dosage, as well as its use for these purposes, is considered experimental.

Preparations: solution (injection) 10 mg. in 1 cc.

Prescription Practice

Progress in Medicine

Acepromazine Trial in Schizophrenia

Clinical treatment of 38 chronic schizophrenic patients with behavior disorders, using acepromazine maleate (Notensil, Bengers) in oral dosage of 50 mg. three times daily initially, increased by 50 mg. daily to 300 mg. a day given in 100-mg. doses, and continued for 6 wks., is reported by J. F. Collard and R. Maggs, *Brit. Med. J.*, **5085,** 1452(June 21, 1958). They conclude that the drug has a limited value in the type of schizophrenic treated. Side-effects, such as hypotension and epilepsy, were observed. The difficulties in making an objective trial with such cases are described, but the investigators "believe that the findings of their study justify the value of the preliminary trial of a drug before the manufacturers embark upon wholesale advertising and distribution."

Antihistamines in Diphenylhydantoin Reactions

A report on 28 mentally defective patients who had developed gingival hyperplasia during therapy with diphenylhydantion (50–400 mg. daily) and were treated with chlorpheniramine maleate (16 patients, 4 mg. every 6 hrs.), tripelennamine HCl (5 patients, 50 mg. every 6 hrs.), and diphenhydramine HCl (5 patients, 25 mg. every 6 hrs.; 2 patients, 10 mg. every 6 hrs.), is given by Dr. F. C. Sturmer, *New Engl. J. Med.*, **259,** 485(1958). No improvement was noted in any patient after a 3-month course of therapy with the antihistamines. The test was made after two reports on successful treatment of diphenylhydantoin-induced gingival hyperplasia had been published in the same Journal in 1957.

Barbiturate and Tranquilizer Sedation of Normal Subjects

The comparative sedative effects of secobarbital, meprobamate, chlorpromazine, phenaglycodol, and a placebo were evaluated by administration of usual doses to normal human subjects and having them operate a simulated automobile driving test apparatus. Data reported by T. A. Loomis and T. C. West, *J. Pharmacol. Exptl. Therap.*, **122,** 525(1958), indicate that only the placebo and phenaglycodol produced no significant impairment of performance. Secobarbital produced the most intense impairment of function. Chlorpromazine produced impairment after a delayed onset of action. Meprobamate produced delayed impairment after the first dose and prompt impairment after the second dose.

Chloroethylamine Derivatives in Cancer

Two derivatives of chloroethylamine gave encouraging results in the treatment of some malignancies, according to the report of Dr. N. J. Perevodtchikova of the Moscow Academy of Medical Sciences, *German Med. Month.*, **3,** 104(1958); *Modern Med.*, **26,** 208 (1958). When administered to 143 patients with inoperable metastasizing neoplasms, DL-*p*-[bis-(β-chloroethyl)-amino]-phenylalanine HCl gave best results in 19 of 23 patients with seminomas. Less favorable results were obtained in patients with reticulum cell sarcomas, Ewing's sarcomas, malignant endotheliomas, primary neoplasms of the liver and bile passages, thymomas, and multiple myelomas. Dosage is 40 to 50 mg. once a week for a total dose of 200 to 250 mg. 4-Methyl-5[bis - (β - chloroethyl) - amino] - uracil, given orally in doses of 10 mg., four to five days apart, for a total of 50 to 80 mg., is effective almost exclusively against chronic myeloid leukemia and Hodgkin's disease.

Chlorothiazide in Antihypertensive Therapy

Addition of chlorothiazide (Diuril) (500 mg. after breakfast and lunch) to therapy with rauwolfia (Raudixin) alone (25 cases) or with mecamylamine (Inversine) (25 cases) produced a decrease in blood pressure associated with a gain in weight in 20%, while 41% showed a decrease in blood pressure associated with either a steady weight or slight weight reduction due to diuresis. In their report on this study, Dr. J. B. Rochelle, III, *et al.*, *J. Am. Med. Assoc.*, **168,** 410(Sept. 27, 1958), state: "It would appear that the encouraging results to date with chlorothiazide in the treatment of hypertension are due to the fact that it has a high relative diuretic potency and continues to be effective on repetitive administration. Though a direct antihypertensive effect cannot be excluded, present evidence suggests that the blood pressure responses seen with the use of chlorothiazide in hypertension are a result of its diuretic effect."

Framycetin in Dermatology

Treatment of 50 cases of skin infection with a topical 1.5% ointment of framycetin sulfate (Soframycin sulfate, Roussel) in a water-soluble base, applied 3–4 times daily, gave good results, reports Dr. D. Burrows, *Brit. Med. J.*, **5093,** 428(Aug. 16, 1958). Only 2 of the 50 cases failed to respond to the antibiotic. Of 32 cases of impetigo, 22 were cured within 1 week. Among 38 responsive cases, *Staph. aureus hemolyticus* was isolated. *Strep. hemolyticus* was isolated from 19 cases, and only 5 were sensitive to the antibiotic. Dr. Burrows states: "The latter finding may reduce its effectiveness in general use, and clinical evidence is given to support this."

Glucosuria—Misleading Tests

False positive tests for glucose in urine may be obtained with Tes-Tape or Clinistix if oxidizing contaminants are present. A letter from A. Phillips, *Brit. Med. J.*, **5093,** 448(Aug. 16, 1958), cites 2 urine specimens that had been brought to a general practitioner in bottles that had contained hydrogen peroxide. The bottles had been rinsed prior to use but there was enough peroxide soaked in the bottle screwcap to give positive tests. Neither specimen reduced Benedict's solution.

Nitrofurantoin—Prolonged Therapy

Treatment of 49 chronic pyelonephritis patients with nitrofurantoin (Furadantin), 50–100 mg. orally 4 times daily for up to 3 years, without development of resistant bacterial strains and only rarely the occurrence of significant systemic toxicity and occasional nausea, is reported by R. W. Lippman, *et al.*, *J. Urol.*, **80,** 77(July 1958). Excretion studies on 15 "normal" and 15 "azotemic" (with impaired renal function) patients in the group indicated that in normal patients 100 mg. of nitrofurantoin 4 times daily cleared urine of pus and bacteria, and symptoms of urinary frequency, urgency, and dysuria were relieved as long as therapy was continued. Satisfactory concentrations were obtained in the normal patients with half the above dosage but not in the azotemic patients. In children weighing less than 50 lbs., 25-mg. doses were sufficient.

New Prescription Products

Hydeltrasol Injection

Description: Each cc. of parenteral solution contains 20 mg. prednisolone 21-phosphate.

Indications: For emergency and general use when corticosteroid therapy is desired. May be used when exacerbations occur in various diseases without disturbing established oral maintenance dosage.

Administration: Intramuscularly, intravenously, or intrasynovially, as determined by the physician.

Form Supplied: 2-cc. and 5-cc. vials.

Source: Merck Sharp & Dohme, Philadelphia 1, Pa.

Madribon Tablets
Madribon Suspension

Description: Each golden double-scored tablet contains 0.5 Gm. and each 5 cc. of custard-flavored suspension contains 0.25 Gm. Madribon (sulfadimethoxine; 2,4-dimethoxy-6-sulfanilamido-1, 3-diazine).

Indications: Upper respiratory infections, urinary tract, systemic and soft tissue infections, caused by susceptible organisms. Prophylactically, against meningitis, rheumatic fever, and secondary invaders in virus infections.

Administration: Initially 1 Gm., then 0.5 Gm. daily; children, 0.5 Gm. per 20 lbs. body weight initially, then half the initial dose every 24 hrs. In severe infections double all doses. Observe precautions for sulfonamide therapy.

Form Supplied: Tablets, bottles of 30, 250, and 1,000. Suspension, 4-oz. and 16-oz. bottles.

Source: Roche Laboratories, Nutley, N.J.

Neothalidine for Suspension

Description: Dry granules consisting of Sulfathalidine (phthalysulfathiozole), 12 Gm., and neomycin sulfate, 8 Gm., to be suspended with 90 cc. of water before dispensing.

Indications: Preoperative preparation of the bowel prior to intra-abdominal and anorectal surgery.

Administration: Orally, 15 cc. (tablespoonful) every 4-6 hrs. for 24 hrs.

Form Supplied: 120-cc. bottles.

Source: Merck Sharp & Dohme, Philadelphia 1, Pa.

Parafon Tablets
Parafon w/Prednisolone Tablets

Description: Each scored pink Parafon tablet contains chlorozoxazone (Paraflex), 125 mg., and acetaminophen, 300 mg. Scored buff tablets contain the same amounts of the two drugs plus 1 mg. of prednisolone.

Indications: For relief of pain, stiffness, and limitation of motion associated with skeletal muscle spasm. The prednisolone combats inflammation.

Administration: Two tablets 3 times daily.

Form Supplied: Parafon tablets in bottles of 50; Parafon w/prednisolone tablets in bottles of 36.

Source: McNeil Laboratories, Inc., Philadelphia, Pa.

Other New Products

Chemicals, clinical trial drugs, diagnostic aids, equipment for the retail and hospital pharmacy.

Anasorb Tablets

Satin–Seal tablets, each 2 containing: ferrous fumarate, 600 mg. (Fe 200 mg.); D-sorbitol, 600 mg.; B_{12} (cobalamin concentrate), 10 mcg.; intrinsic factor, 0.5 u.; folic acid, 1 mg.; and ascorbic acid, 150 mg., are marketed by *Marion Labs.* for use in treatment of anemias. Dosage: 2 tablets daily with meals; double dosage for pernicious anemias. Supplied in bottles of 60, 500, and 1,000.

Candettes Cold Tablets

Pink tablets containing, in each: salicylamide, 97 mg.; phenacetin, 97 mg.; caffeine, 20 mg.; phenylephrine HCl, 5 mg.; pheniramine maleate, 10 mg.; and vitamin C, 20 mg., are marketed by *Chas. Pfizer* for relief from symptoms of common cold. Dosage, orally, 1–2 tablets every 3–4 hrs.; not to exceed 8 tablets in 24 hrs. Children 6–12 yrs., half the adult dosage; under 6 yrs., as indicated by a physician. Supplied, 24 tablets in amber bottle.

Deltasmyl Tablets

Scored tablets containing in each: prednisone, 1.5 mg.; theophylline, 120 mg.; ephedrine HCl, 15 mg.; and phenobarbital, 8 mg.; are marketed by *Roussel Corp.* for relief of asthmatic seizures. Dosage: 1 tablet at 4-hr. intervals; do not exceed 6 tablets in 24 hrs. Supplied in bottles of 50.

Desoxyn Gradumet Tablets

Gradual release tablets containing 5 mg. (white), 10 mg. (orange), or 15 mg. (yellow) Desoxyn HCl (methamphetamine HCl, *d*-desoxyephedrine HCl) are marketed by *Abbott Labs.* for use as a central stimulant, appetite depressant, mood elevator, in the management of narcolepsy, and as an adjunct in the management of Parkinsonism. Dosage: for obesity, 10–15 mg. 30–60 min. before breakfast, and, if required, 5–15 mg. before lunch. If weight loss is not desired, take during or after meals. For depression, narcolepsy, or Parkinsonism, 15 mg. in morning or 10–15 mg. 2 or 3 times daily. Use cautiously in cardiovascular disease, thyroid disturbance, insomnia, hypertension, old age, or sensitivity to sympathomimetic agents. Stop Desoxyn and use barbiturates if pronounced restlessness, insomnia, headache, vertigo, palpitation, arrhythmia, or weakness occur. Supplied: all strengths in bottles of 50 and 500 tablets.

Dextran Solution 12%

Abbott Laboratories has marketed a 12% parenteral solution of partially hydrolyzed dextran for i.v. administration in the treatment of nephrosis to enhance diuresis and lessen edema. In patients with heart disease or impaired kidney function watch for early signs of pulmonary edema or congestive heart failure. An occasional patient may develop mild urticaria. Daily infusion of 300–400 cc. per sq. meter of body sur-

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All actively promoted items on which information has been received in the past thirty days are reported here. Manufacturers are urged to send details of their new products as early as possible, so that pharmacists through these pages will have full information before products are detailed to the physician. For inclusion in this department, for which there is no charge, send descriptive literature to the Editor, New Prescription Products Department; JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 2215 Constitution Avenue, N.W., Washington 7, D.C.

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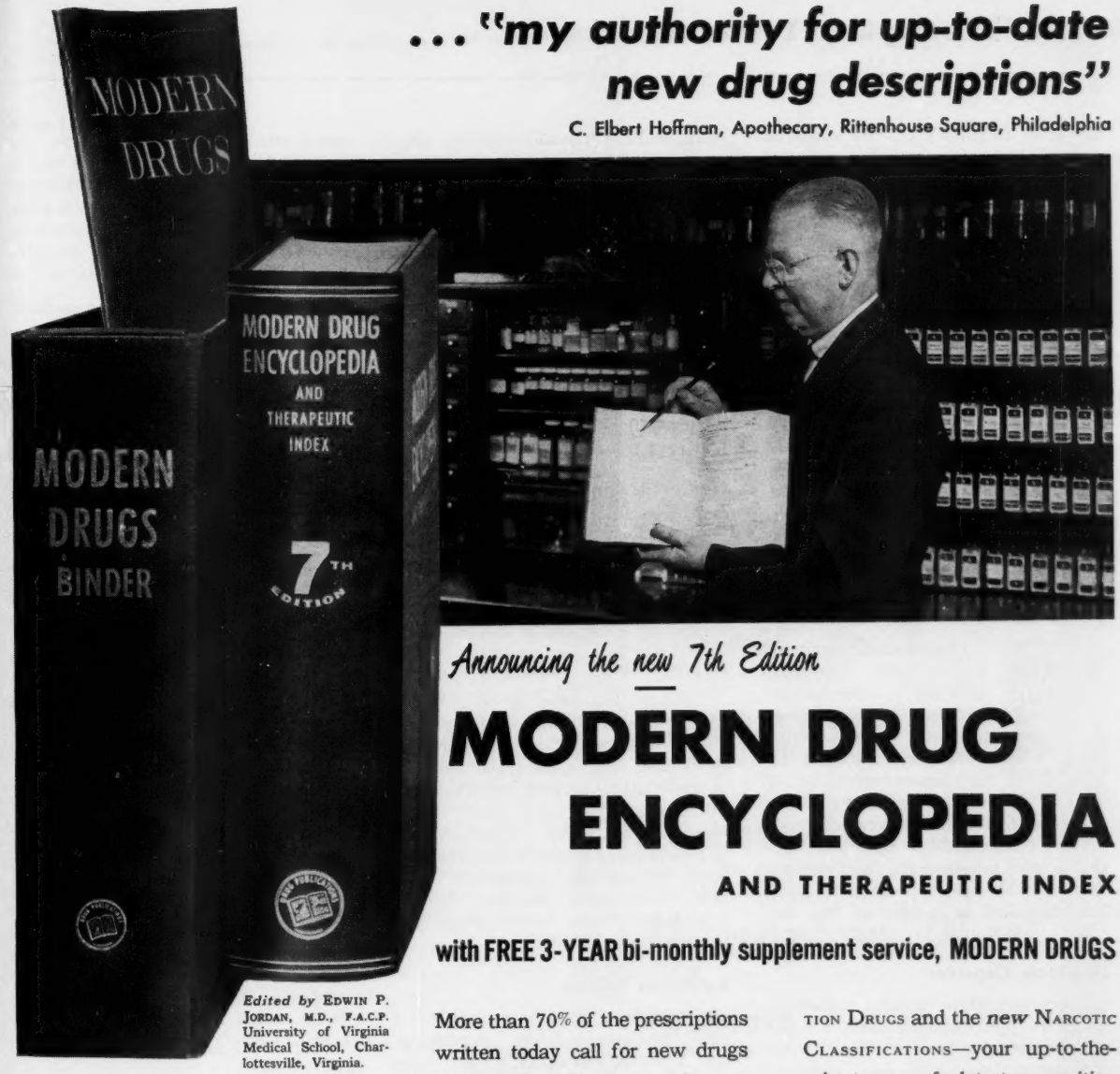

Edited by EDWIN P. JORDAN, M.D., F.A.C.P. University of Virginia Medical School, Charlottesville, Virginia.

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face or 10–15 ml./Kg. of body weight at a rate of 2–4 ml./min. is recommended for a minimum of 3–5 consecutive days. Supplied in 250-cc. Abbo-Liter bottles in boxes of 6.

Dimetane-Ten Injection
Dimetane-100 Injection

Parenteral solutions containing, in each cc., 10 mg. or 100 mg. Dimetane (parabromdylamine maleate) are marketed by *A. H. Robins Co.* for rapid symptomatic relief of many allergy reactions. The effect is usually obtained within 15 min. and may persist for 12 hrs. Side effects such as dizziness, lassitude, nausea, or giddiness may occur occasionally. Supplied: Dimetane-ten, 1-cc. ampuls in boxes of 6; Dimetane-100, 2-cc. multiple-dose vials in boxes of 1.

Dipral Tablets

Coated tablets containing in each: dipyrone, 62.5 mg.; salicylamide, 192 mg.; aminobenzoic acid, 192 mg.; ascorbic acid, 20 mg.; and cobalamin concentrate (B_{12}), 2.5 mcg., are marketed by *Charles C. Haskell* for use in arthritis and neuritic conditions, low back pain, torticollis, etc., to relieve pain and increase motility. Dosage: 1–2 tablets every 4 hrs. Supplied in bottles of 100 and 1,000.

Duadacin Capsules

Green and white capsules containing in each: phenylephrine HCl, 5 mg.; chlorpheniramine maleate, 1 mg.; pyrilamine maleate, 12.5 mg.; caffeine, 30 mg.; ascorbic acid, 50 mg.; acetophenetidin, 130 mg.; and salicylamide, 200 mg., are marketed by *Lloyd Brothers* for use in relief of cold symptoms. Dosage: 1 capsule 3–4 times daily. Supplied in bottles of 100.

Fendon Tablets

Scored tablets containing 5 gr. acetyl-*p*-aminophenol (acetaminophen) in each are marketed by *Am. Pharm. Co.* for analgesic use. Dosage: 1 tablet 3 times daily; children 6–12 years, half the dosage. Supplied in bottles of 36 for o-t-c sale.

Geroniazol Elixir

An elixir containing, in each 5 cc., pentylenetetrazol, 200 mg., and nicotinic acid, 100 mg., with alcohol 12%, is marketed by *Columbus Pharmacal* for use as a respiratory and circulatory stimulant for senile, fatigued, debilitated, and convalescent patients. Dosage, 5 cc. 3 times daily. Supplied in pints and gallons.

Histene Tablets

Tablets containing in each: phenylpropanolamine HCl, 25 mg.; pyrilamine maleate, 10 mg.; thenylpyramine HCl, 8 mg.; and pheniramine maleate, 5 mg., are marketed by *Paul Maney Labs.* for symptomatic relief in colds, nasal allergies, and sinusitis. Dosage: 1–2 tablets 3–4 times daily; children 6–11 yrs., half the dosage. Supplied in bottles of 100 and 1,000.

Hydro-Tar Ointment

An ointment containing 1.2% crude coal tar and 1% or 0.5% hydrocortisone in a vanishing cream base is marketed by *Almay* for use in the treatment of a variety of acute and chronic dermatitis conditions. Supplied in 15-Gm. tubes.

Ilopan–Choline Tablets

Tablets containing, in each, Ilopan (*d*-pantothenyl alcohol), 50 mg., and choline bitartrate, 25 mg., are marketed by *Warren-Teed* for use in the treatment of ambulatory patients suffering from "bloated, gaseous" abdominal distention. The combination is claimed to aid in formation of acetylcholine which enables nerve-impulse transmission to restore normal bowel function. Dosage, 2 tablets 3 times daily. Supplied in bottles of 100 and 500.

Kalsapan Tablets

Pink coated tablets containing in each: gentian ext., 0.5 gr.; condurango ext., 1 gr.; calumba root, 0.5 gr.; quassia ext., 0.25 gr.; cola nut ext., 1 gr.; guarana paste, 0.5 gr.; caffeine, 0.1 gr.; and iron gluconate, 1 gr., are marketed by *Am. Pharm. Co.* for use as an appetite stimulant. Dosage: 2 tablets swallowed (not chewed) an hour before meals; children, half the dosage. Supplied in bottles of 100.

Meti-Derm w/Neomycin Aerosol

Schering Corp. has marketed a combination of prednisolone, 50 mg., and neomycin sulfate, 50 mg., in a 150-Gm. spray container that delivers in a 3-sec. spray approximately 0.5 mg. of each drug. Particularly indicated in allergic skin disorders where the area has become infected, or where prevention of infection is desired.

Milprem-200 Tablets

Tablets containing, in each, Miltown (meprobamate), 200 mg., and conjugated estrogens (equine), 0.4 mg., are marketed by *Wallace Labs.* for use in management of menopause. The original combination of 400 mg. and 0.4 mg. of the 2 drugs, respectively, will be called Milprem-400. Both strengths are supplied in bottles of 60 tablets.

Mucidenum Capsules

Red capsules containing in each: gastric mucin, 150 mg.; duodenal substance, 250 mg.; ascorbic acid, 25 mg.; and bioflavonoids, 30 mg., are marketed by *Thurston Labs.* for use in treatment of peptic ulcer. Dosage: 2 capsules 1 hr. before meals or as needed. Supplied in bottles of 50, 100, and 500.

Nicotron Elixir

An elixir containing, in each 5 cc., nicotinic acid, 75 mg., and glycine, 750 mg. in a sherry wine base (alcohol 5%), is marketed by *Haug Drug Co.* for use in treatment of poor circulation in hands and feet, chilblains, and senile psychosis. Dosage, 1–2 teaspoonfuls 3 times daily before meals. Flushing, warmth and tingling of the skin are noted. Supplied in 8-oz. bottles.

Resulin-F Cream
Neo-Resulin-F Cream

Almay has marketed Resulin-F cream containing: resorcinol monoacetate 1.5%, sulfur 2%, hydrocortisone 0.5%, and alcohol 8.5% w/w, for dermatologic use. Neo-Resulin-F contains the came concentrations of the same ingredients plus neomycin sulfate 0.5%. Both creams are supplied in 15-Gm. tubes.

Solu-B, Sterile, Mix-O-Vial

The *Upjohn Co.* has marketed a 2-cc. Mix-O-Vial containing: thiamine HCl, 10 mg.; riboflavin, 10 mg.; pyridoxine HCl, 5 mg.; calcium pantothenate, 50 mg.; nicotinamide, 250 mg.; B_{12}, 25 mcg.; and water, 1.8 cc., with methyl paraben 0.13% and propylparaben 0.015%, for i.m. or i.v. injection. The vials of dry mixture for injection also are available.

Solu-Zyme, Sterile, Mix-O-Vial

Mix-O-Vials containing in each unit: thiamine HCl, 10 mg.; riboflavin, 10 mg.; pyridoxine HCl, 5 mg.; sodium pantothenate, 50 mg.; nicotinamide, 250 mg.; folic acid, 5 mg.; B_{12}, 25 mcg.; and water 1.8 cc., with methylparaben 0.13% and propylparaben 0.015%, are marketed by *Upjohn Co.* for i.m. or i.v. injection. The original sterile vials also are available.

APhA Women's Auxiliary

First Life Member

Mrs. William H. McNeil of Midland Park, N.J., has the honor of becoming the first member to obtain a life membership in the Women's Auxiliary of the AMERICAN PHARMACEUTICAL ASSOCIATION. Congratulations, Mrs. McNeil.

Student Loan Fund

The Student Loan Fund Committee reports that three junior and senior women pharmacy students, whose applications for loans have been approved by their deans and the loan committee of the Auxiliary, have received funds to aid them in continuing their studies.

Hugh Mercer Apothecary Shop

A very recent visit to the Hugh Mercer Apothecary Shop with Mrs. Royce Franzoni, chairman of that committee, was most interesting and enlightening. With her committee, Mrs. Franzoni has made a very complete study of the needs and possibilities of the shop which is centrally located in Fredericksburg, Va., and is one of the important historical spots in that city. The custodian of the shop has given the committee a very complete history of the Hugh Mercer Apothecary Shop and the articles it contains, as well as a brief biographical sketch of General Hugh Mercer. The auxiliary should be proud to have a part in the improvement and maintenance of the shrine. Members are again reminded that there is a need for more items of pharmaceutical historical value of the 18th century for display in the shop. Should anyone care to share these treasures and donate them to the Hugh Mercer Apothecary Shop, Mr. George Griffenhagen should be contacted at the AMERICAN PHARMACEUTICAL ASSOCIATION headquarters. Such articles would be duly marked with the donors' names.

District Chairmen

Miss Amelia DeDominicis of Baltimore is again serving as Chairman for District 1 of the Auxiliary. Mrs. J. Birmingham of Seattle, Wash., is Chairman of District 7.

Good News

Our beloved Mrs. Hugo (Betty) Schaefer is on the convalescent list after being hospitalized. Everyone wishes you a speedy recovery, Betty.

Our Secretary

Dr. Joy Plein, our most efficient secretary, is on a traveling off-campus assignment with her husband, Dr. Elmer Plein, this fall. Since she is covering the length and breadth of the United States, she may be in your area and meet some of the district officers. I shall be glad to let you know when she will be in your vicinity if you will drop me a line.

We are anxious to obtain a list of state pharmaceutical association auxiliaries. If you belong to one or know of one, will you please send me the name and address of the president or secretary?

Dorothy M. Cusick, President
APhA Women's Auxiliary

Robins

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Tear out for a handy check of your current stock of these Robins products that are receiving **special promotion in your area THIS MONTH**

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Prescription Practice

Cumulative Index*

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